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NORTH AMERICAN FLORA

(ASCLEPIADALES)

APOCYNACEAE

ROBERT EVERARD WOODSON, JR.

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ANNOUNCEMENT

NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Myxomycetes, Schizophyta.
Volumes 2 to 10 Fungi.
Volumes 11 to 13. Algae.
Volumes 14 and 15. Bryophyta.
Volume 16. Pteridophyta and Gymnospermae.
Volumes 17 to 19. Monocotyledones.
Volumes 20 to 34. Dicotyledones.

The preparation of the work has been referred to a committee consisting of Dr. H. A. Gleason, Dr. J. H. Barnhart, and Dr. Fred J. Seaver.

Professor William Trelease, of the University of Illinois, and Dr. William R. Maxon, of the United States National Herbarium, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

NORTH AMERICAN FLORA is published in parts of variable size; it is expected that four or more parts will be required for each volume. The subscription price for all parts published prior to 1936 is fixed at $1.50 for each part; for later parts it is approximately two cents per page. A limited number of separate parts will be sold at an advance of a third above the subscription price.

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APOCYNACEAE

By Robert Everard Woodson, Jr.

Calyx gamosepalous, the lobes usually parted nearly to the receptacle, imbricate, frequently bearing various glandular appendages (squamellae) within. Corolla gamopetalous, usually salverform or infundibuliform, rarely rotate, urceolate, or campanulate, the tube occasionally bearing more or less conspicuous faucal appendages within, the limb 5-parted (in our genera), actinomorphic, the lobes sinistrorsely or dextrorsely contorted in aestivation. Stamens 5 (in our genera), epipetalous, alternate with the corolla-lobes, the anthers 4-locular, introrse. Ovary 2-carpellary (in our genera), apocarpous or syncarpous, 2-celled with axile placentae, or 1-celled with parietal placentae, produced into a single style surmounted by a massive stigma of diversified structure; ovules few to many, anatropous or orthotropous. Fruit apocarpous or syncarpous, follicular, capsular, baccate, or drupaceous. Seeds chiefly albuminous, naked, comose, or with a papery wing, occasionally with fleshy arils; embryo straight, typically dicotyledonous. Trees, shrubs, lianas, or herbs, chiefly laticiferous. Leaves usually opposite, or sometimes verticillate or alternate, always entire.

- Anthers neither connivent nor agglutinated to the stigma, without an enlarged sterile connective; aestivation predominantly sinistrorse.
  - Ovary apocarpous to the base, or nearly so; fruit frequently syncarpous.
    - Carpels containing numerous ovules.
      - Calyx bearing squamellae within; seeds with fleshy arils at maturity.
        - Calyx-lobes and bracts small, scarious or only slightly foliaceous; corolla salverform. — 1. Tabernaemontana.
        - Calyx-lobes and bracts large, conspicuously foliaceous or petaloid; corolla infundibuliform to salverform. — 2. Stemmadenia.
      - Calyx without squamellae; seeds not arillate.
        - Plants woody.
          - Calyx-lobes 5, essentially equal (except in *Himatanthus*).
            - Ovules multiseriate; corolla large and conspicuous, its lobes 9–60 mm. long.
              - Bracts minute; calyx manifest, regular; seeds with an eccentric basal wing. — 3. Plumeria.
              - Bracts conspicuous; calyx obsolete or minute, very irregular; seeds with a broad, essentially concentric wing. — 4. Himatanthus.
            - Ovules 2-seriate; corolla relatively small.
              - Ovary with an annular nectary; fruit woody; seeds with a broad, nearly concentric wing; trees, or rarely shrubs. — 5. Aspidosperma.
              - Ovary without a nectary; shrubs.
                - Fruit strongly compressed, samara-like; leaves opposite. — 6. Cameraria.
                - Fruit terete.
                  - Seeds irregularly ciliate along the margin; leaves in whorls of 3 or 4, or rarely opposite. — 7. Tonduzia.
                  - Seeds with a narrow wing at each end; leaves opposite. — 8. Strempeliopsis.
          - Calyx-lobes 4, the two outer connate, completely enclosing the smaller pair within. — 9. Cufodontia.
        - Plants herbaceous.
          - Ovary with 2 ovoid nectaries.
            - Corolla salverform, white to pink; flowers usually 1–3 in the leaf-axils; annuals. — 10. Lochnera.

Corolla infundibuliform, blue, or rarely white; flowers solitary in the leaf-axils; perennials. 11. VINCA.
Ovary without nectaries.
Seeds comose; tube of the corolla much shorter than its lobes. 12. HAPLOPHYTON.
Seeds naked; tube of the corolla at least equaling its lobes. 13. AMSONIA.
Carpels containing 1–6 ovules.
Fruit fleshy; plants fruticose or arborescent.
Calyx bearing squamellae within; flowers large and conspicuous, the lobes of the corolla 17–60 mm. long.
Corolla-lobes much shorter than the tube, sharply reflexed; fruit baccate. 14. PLUMERIOPSIS.
Corolla-lobes equaling or surpassing the tube, spreading; fruit drupaceous. 15. THEVETIA.
Calyx without squamellae; flowers relatively small.
Ovary surrounded by an annular nectary; fruit essentially syncarpous, both carpels developing; leaves usually whorled, occasionally opposite. 16. RAUWOLFIA.
Ovary without a nectary; fruit apocarpous, usually only one carpel developing; leaves alternate. 17. VALLESIA.
Fruit follicular, dry; plants climbing. 18. ANECHITES.
Ovary syncarpous throughout.
Ovary 2-celled; placentae axile; leaves opposite.
Corolla-tube about equaling the lobes; stamens inserted about the middle of the corolla-tube; stigma relatively short and thick, essentially glabrous; style short. 19. LACMELLEA.
Corolla-tube much longer than the lobes; stamens inserted toward the orifice of the corolla-tube; stigma slender, densely puberulent; style long and slender. 20. ZSCHOKKEA.
Ovary 1-celled; placentae parietal; leaves verticillate, rarely opposite or alternate.
Corolla infundibuliform, large and conspicuous; fruit capsular, spiny. 21. ALLAMANDA.
Corolla salverform, relatively small; fruit fleshy, indehiscent, smooth. 22. COUMA.
Anthers connivent and agglutinated to the stigma, consisting of an enlarged, 2-lobed, sterile connective bearing dorsally toward its apex the smaller parallel sporangia; aestivation predominantly dextrorse.
Corolla not appendaged within, or with appendages attached above the insertion of the stamens; pollen granular, not maintained in persistent tetrads; lianas, shrubs, or small trees, rarely perennial herbs (*Cycladenia*).
Anther-connectives with thick, obtuse, basal lobes, the sporangia uniformly fertile; stigma pentagonal-umbraculiform (except in *Allomarkgrafia*); upper surface of the leaves glandular on the midrib, at least toward the base.
Inflorescence compound, at least obscurely dichotomous.
Corolla infundibuliform; inflorescence branching repeatedly.
Anthers with linear apical appendages; stigma umbraculiform; lower surface of the leaves usually bearing a single lenticular pit in the axils of the lateral veins. 23. TINTINNABULARIA.
Anthers without apical appendages; stigma fusiform; leaves not pitted beneath. 24. ALLOMARKGRAFIA.
Corolla salverform; inflorescence obscurely dichotomous, branching once or twice. 25. MESECHITES.
Inflorescence simple.
Plants twining, or erect or suberect and then with salverform corolla; flowers hemeranthous. 26. MANDEVILLA.
Plants fruticose or suffrutescent; corolla infundibuliform; flowers vespertine. 27. MACROSIPHONIA.
Anther-connectives with slender or attenuate basal lobes or, if with obtuse lobes (cf. *Asketanthera, Fernaldia, Echites elegantula*), the sporangia then with conspicuous, sterile, protuberant bases; stigma fusiform to subcapitate; leaves not glandular (except in certain species of *Forsteronia*).
Calyx bearing squamellae within.
Squamellae alternate with the calyx-lobes or indefinitely distributed.
Corolla salverform, relatively small.
Inflorescence thyrsiform; seeds comose at the apex; lianas.
Anthers somewhat exserted; leaves usually glandular at the base of the midrib above. 28. FORSTERONIA.
Anthers wholly included; leaves never glandular.
Squamellae solitary; stigma narrowly fusiform; plants of the tropics. 29. SECONDATIA.

- Squamellae clustered; stigma subcapitate; plants of the temperate zone. — 30. TRACHELOSPERMUM.
- Inflorescence umbellate; seeds naked or generally pubescent; shrubs or small trees. — 31. MALOUETIA.
- Corolla infundibuliform, relatively large and conspicuous.
  - Corolla with conspicuous petaloid appendages within; leaves mostly ternate. — 32. NERIUM.
  - Corolla not appendaged within; leaves opposite.
    - Leaves not peltate.
      - Anthers without linear apical appendages; placentae not chaffy.
        - Plants fruticose or arborescent; calyx-lobes not closely imbricate; seeds truncate. — 33. NEOBRACEA.
        - Plants twining (occasionally suberect in *Angadenia*).
          - Calyx-lobes closely imbricate; seeds truncate. — 34. ODONTADENIA.
          - Calyx-lobes scarcely imbricate; seeds rostrate. — 35. ANGADENIA.
      - Anthers with linear apical appendages; placentae chaffy in fruit. — 36. URECHITES.
    - Leaves peltate. — 37. PELTASTES.
- Squamellae as many as the calyx-lobes and opposite them, occasionally deeply lacerate.
  - Corolla not appendaged within, without a callous annulate orifice.
    - Corolla infundibuliform to salverform; anthers deeply included.
      - Corolla infundibuliform, the lobes arachnoid-villous within. — 38. FERNALDIA.
      - Corolla salverform, the lobes not arachnoid-villous within.
        - Inflorescence compound, occasionally very obscurely so; calyx-lobes and bracts small, scarious or only slightly foliaceous. — 39. ECHITES.
        - Inflorescence simple; calyx-lobes and bracts large, foliaceous. — 40. ASKETANTHERA.
    - Corolla rotate to subsalverform; anthers usually conspicuously exserted. — 41. THENARDIA.
  - Corolla usually with ligular appendages behind the stamens, with a callous annulate orifice; anther-tips usually exserted. — 42. PRESTONIA.
- Calyx without squamellae.
  - Corolla infundibuliform, the tube not spirally twisted, without a callous annulate orifice.
    - Seeds rostrate; lianas. — 43. RHABDADENIA.
    - Seeds truncate; shrubs or small trees. — 33. NEOBRACEA.
    - Seeds truncate; subsucculent perennial herbs. — 44. CYCLADENIA.
  - Corolla salverform, the tube usually spirally twisted, with a more or less pronounced, callous, annulate orifice. — 45. LAUBERTIA.
- Corolla with small internal scales at the base of the tube; pollen subglutinous, maintained in persistent tetrads; perennial herbs. — 46. APOCYNUM.

1. TABERNAEMONTANA L. Sp. Pl. 210. 1753.

Bonafousia A. DC. in DC. Prodr. 8: 359. 1844.
Peschiera A. DC. in DC. Prodr. 8: 360. 1844.
Taberna Miers, Apoc. S. Am. 61. 1878.

Shrubs to medium-sized trees. Leaves opposite. Inflorescence compound-cymose usually many-flowered. Calyx 5-parted nearly to the receptacle, its lobes equal, relatively small, scarious or only slightly foliaceous, bearing many squamellae within. Corolla salverform, usually relatively small. Anthers not connivent, free from the stigma, without an enlarged connective, usually tinged with bluish-green in our species. Ovary apocarpous, multiovulate, with or without a basal annular nectary. Fruit follicular, fairly large, heavy in texture, containing many naked seeds embedded among fleshy arils.

Type species, *Tabernaemontana citrifolia* L.

- Anthers yellow throughout, not tinged with bluish-green, inserted near or below the middle of the corolla-tube, always wholly included.
  - Gynoecial nectary present, adnate to the ovary; anthers 4.5 mm. long.
    - Corolla-lobes 7–10 mm. long, about equaling the tube or somewhat shorter, broadly obovate-dolabriform; stigma predominantly 2-apiculate, not conspicuously 5-angled; leaves thinly membranaceous; Cuba. — 1. *T. apoda.*

Corolla-lobes about 16 mm. long, somewhat surpassing the tube, oblong-dolabriform; stigma not prominently 2-apiculate, very conspicuously 5-angled; leaves subcoriaceous; Jamaica. 2. *T. ovalifolia.*
Gynoecial nectary absent; anthers 3–3.5 mm. long; Central America. 3. *T. arborea.*
Anthers margined or tipped with bluish-green, inserted near or above the middle of the corolla-tube, frequently more or less exserted.
Anthers barely exserted or essentially included.
Corolla-tube 6–9 mm. long; follicles broadly gibbous-ovoid, obtuse to abruptly acuminate.
Inflorescence congested, much shorter than the subtending leaves.
Anthers inserted near the middle of the corolla-tube; corolla-lobes about equaling the tube; Jamaica. 4. *T. Wullschlaegelii.*
Anthers inserted in the upper third of the corolla-tube; corolla-lobes somewhat surpassing the tube.
Calyx-lobes 2–3 mm. long; corolla 18–20 mm. long; anthers barely included; Cuba. 5. *T. amblyocarpa.*
Calyx-lobes 1.5–1.8 mm. long; corolla 14–18 mm. long; anther-tips barely exserted; southern Mexico. 6. *T. alba.*
Inflorescence relatively lax, nearly or about equaling the length of the leaves; Central America.
Corolla-tube somewhat inflated at the base; leaves thinly membranaceous. 7. *T. longipes.*
Corolla-tube not inflated at the base; leaves firmly membranaceous to subcoriaceous. 8. *T. chrysocarpa.*
Corolla-tube 10–16 mm. long; follicles rather narrowly gibbous-ellipsoid, gradually acuminate.
Inflorescence decidedly congested, subumbellate at the end of a relatively long sterile peduncle; corolla-lobes much shorter than the tube; Jamaica and Grand Cayman. 9. *T. laurifolia.*
Inflorescence relatively lax, subcorymbose; corolla-lobes about equaling or somewhat surpassing the tube.
Corolla-lobes about equaling the tube; anthers barely included.
Corolla comparatively thin in texture, its lobes rather narrowly oblong-dolabriform, with an inconspicuous lateral acumen; leaves elliptic, gradually acuminate; Jamaica. 10. *T. discolor.*
Corolla comparatively thick in texture, its lobes broadly obovate-dolabriform, with a very conspicuous lateral acumen; leaves obovate to obovate-elliptic, obtuse to very abruptly acuminate; Puerto Rico. 11. *T. oppositifolia.*
Corolla-lobes conspicuously surpassing the tube; anther-tips slightly exserted; Cuba and Hispaniola. 12. *T. citrifolia.*
Anthers about half exserted; Central America. 13. *T. amygdalifolia.*

NOTE: In addition to the foregoing, two Asiatic species, *Tabernaemontana Cumingiana* A. DC. and *Tabernaemontana coronaria* (Jacq.) R. Br., are widely cultivated. Both are shrubby, bearing flowers twice or more than twice as large as those of the indigenous species of North America. *T. coronaria* may be distinguished from *T. Cumingiana* by its much broader leaves and its larger, usually double, flowers. Both species are sometimes included within the segregate genus *Ervatamia.*

1. **Tabernaemontana apoda** C. Wright; Sauv. Anal. Acad. Ci. Habana 7: 103. 1870.

Glabrous shrub or small tree 2–9 m. tall; leaves thinly membranaceous, broadly oval to obovate-elliptic, 8–17 cm. long, 4–8 cm. broad, abruptly and shortly acuminate, broadly obtuse at the base, the petioles 5–12 mm. long; inflorescence corymbose, much branched, about equaling or somewhat shorter than the subtending leaves, bearing numerous, small, creamy-white flowers; pedicels 5–7 mm. long; calyx-lobes ovate-lanceolate, acuminate, 2.3–2.5 mm. long, scarcely imbricate at the base, very minutely ciliolate; corolla salverform, the tube 9–10 mm. long, about 1.7 mm. in diameter at the base, conspicuously narrowed toward the orifice, the lobes spreading, broadly obovate-dolabriform, obtuse, 7–10 mm. long; stamens inserted near the base of the corolla-tube, the anthers uniformly yellowish, 4.5 mm. long, deeply included; ovary surrounded at the base by a low, annular, adnate nectary; stigma predominantly 2-apiculate; follicles stout, subreniform, very shortly and abruptly recurved-acuminate, 6–8 cm. long, 2–2.5 cm. thick, obscurely verrucose.

TYPE LOCALITY: Casilda, Trinidad, Cuba.
DISTRIBUTION: Cuba.

2. **Tabernaemontana ovalifolia** Urban, Symb. Ant. 5: 462. 1908.

Small tree, about 8 m. tall, glabrous throughout; leaves subcoriaceous, broadly oval to broadly oblong-elliptic, 8–22 cm. long, 4–8 cm. wide, obtuse to very shortly and obtusely acuminate, broadly obtuse at the base, the petioles 12–15 mm. long; inflorescence corymbose, much branched, conspicuously shorter than the subtending leaves, bearing few to numerous creamy-white flowers; pedicels 10–15 mm. long; calyx-lobes broadly ovate, obtuse, about 4 mm. long, rather closely imbricate throughout; corolla salverform, the tube 10–12 mm. long, about 2.5 mm. in diameter at the base, scarcely narrowed toward the orifice, the lobes spreading, narrowly ovate-dolabriform, about 16 mm. long, obtuse, with a conspicuous lateral acumen; stamens inserted about the middle of the corolla-tube, the anthers uniformly yellowish, 4.5 mm. long, wholly included; ovary surrounded at the base by a very low, annular, adnate nectary; stigma 5-angular, not conspicuously 2-apiculate; follicles unknown.

TYPE LOCALITY: Between Askenish and Dolphin Head, Jamaica, alt. 400 meters.
DISTRIBUTION: Jamaica.

3. **Tabernaemontana arborea** Rose; Donn. Smith, Bot. Gaz. 18: 206. 1893.

Tabernaemontana Schippii Standley, Field Mus. Publ. Bot. 8: 34. 1930.

Tree, attaining a height of 20 m., essentially glabrous throughout; leaves membranaceous, ovate-elliptic to narrowly oblong-elliptic, 7–18 cm. long, 2–7 cm. broad, shortly and obtusely acuminate, obtuse to broadly acute at the base, the petioles 5–25 mm. long; inflorescence broadly corymbose, much branched, usually shorter than the subtending leaves, bearing numerous, fragrant, white flowers; pedicels 5–8 mm. long; calyx-lobes ovate-lanceolate, acute to acuminate, 2–3 mm. long, scarcely imbricate at the base; corolla salverform, the tube 7–9 mm. long, about 1.5 mm. in diameter at the base, conspicuously narrowed toward the orifice, the lobes obliquely ovate-oblong, obtuse, 12–15 mm. long, spreading; stamens inserted near the base of the corolla-tube, the anthers uniformly yellowish, 3–3.5 mm. long, deeply included; ovary without a nectary; stigma 5-lobed; follicles broadly reniform, obtuse, conspicuously verrucose, 6–8 cm. long, 3–4.5 cm. broad.

TYPE LOCALITY: Rio Ocosito, Quezaltenango, Guatemala.
DISTRIBUTION: British Honduras and Guatemala; Panama.

4. **Tabernaemontana Wullschlaegelii** Griseb. Fl. Brit. W. Ind. 409. 1861.

Anartia Wullschlaegelii [Wulfschlaegelii] Miers, Apoc. S. Am. 81. 1878.
Tabernaemontana lactea Urban, Symb. Ant. 6: 34. 1909.
Tabernaemontana glaucescens Urban, Symb. Ant. 6: 35. 1909.
Tabernaemontana calcicola Urban, Repert. Sp. Nov. 13: 472. 1915.

Shrub or small tree, attaining a height of 10 m., glabrous throughout; leaves firmly membranaceous to subcoriaceous, narrowly oblong-elliptic to obovate-elliptic, 3–18 cm. long, 1.5–8 cm. broad, acute to obtuse, broadly acute to rounded at the base, the petioles 5–22 mm. long; inflorescence subcorymbose, much shorter than the subtending leaves, repeatedly branched, bearing numerous, small, greenish-white or cream-colored flowers; pedicels 2–9 mm. long; calyx-lobes ovate, acute to obtuse, 2.5–2.7 mm. long, closely imbricate; corolla salverform, the tube 6–8 mm. long, about 1.25 mm. in diameter at the base, slightly constricted at the insertion of the stamens, the lobes oblong-dolabriform, 6–10 mm. long, spreading; stamens inserted about the middle of the corolla-tube, the anthers margined with bluish-green, barely included; ovary surrounded at the base by an adnate annular nectary; follicles broadly ovoid-subreniform, 2.5–3 cm. long, 1.5–2 cm. broad, obtuse or with a very short incurved acumen, longitudinally striate, otherwise smooth.

TYPE LOCALITY: Fairfield, Manchester, Jamaica.
DISTRIBUTION: Jamaica.

5. **Tabernaemontana amblyocarpa** Urban, Symb. Ant. **5**: 463. 1908.

Tabernaemontana Berterii var. *parviflora* A. DC. in DC. Prodr. 8: 368. 1844.

Small tree or shrub, occasionally attaining a height of 10 m., wholly glabrous; leaves membranaceous, obovate-elliptic to oblanceolate-elliptic, 3–23 cm. long, 1.5–6.5 cm. broad, obtuse to abruptly and obtusely subcaudate-mucronate, obtuse at the base, the petioles 5–30 mm. long; inflorescence subcorymbose, with a rather long peduncle, much branched, shorter than the subtending leaves, bearing numerous white flowers of medium size; pedicels 5–14 mm. long; calyx-lobes ovate, acute to obtuse, 2–3 mm. long; corolla-tube 6–7 mm. long, about 1.6 mm. in diameter at the base, slightly constricted at the insertion of the stamens, the lobes obovate-dolabriform, with a conspicuous lateral acumen, obtuse, 12–13 mm. long, spreading; stamens inserted in the upper third of the corolla-tube, the anthers margined with bluish-green, barely included; ovary surrounded at the base by an indistinct, adnate, annular nectary; follicles ovoid-subreniform, 2–2.5 cm. long, 1.5–2.5 cm. broad, obtuse or with an inconspicuous, recurved acumen, longitudinally striate, otherwise smooth.

TYPE LOCALITY: Cuba.
DISTRIBUTION: Cuba.

6. **Tabernaemontana alba** Mill. Gard. Dict. ed. 8. Tabernaemontana no. 2. 1768.

Tabernaemontana Martensii Peyr. Linnaea **30**: 31. 1859.
Tabernaemontana umbellata Sessé & Moc. Fl. Mex. 46. 1893.
Tabernaemontana veracrucensis Sessé & Moc. Fl. Mex. 47. 1893.
Tabernaemontana paisavelensis Loesener, Bull. Herb. Boiss. **2**: 555. 1894.

Small tree, wholly glabrous; leaves membranaceous to subcoriaceous, obovate-elliptic to oblanceolate-elliptic, 3.5–16 cm. long, 1.5–7 cm. broad, obtuse to abruptly and obtusely acuminate, usually acutely cuneate at the base, the petioles 5–20 mm. long; inflorescence broadly corymbose, much branched, much shorter than the subtending leaves, bearing numerous small white flowers, the internodes usually successively shorter to the base; pedicels 2–10 mm. long; calyx-lobes ovate, obtusish, closely imbricate, 1.5–1.8 mm. long; corolla salverform, the tube 6–8 mm. long, about 1.25 mm. in diameter at the base, slightly constricted at the insertion of the stamens, the lobes oblong-dolabriform, with an inconspicuous lateral acumen, obtuse, 8–10 mm. long, spreading; stamens inserted in the upper third of the corolla-tube, the anthers margined with bluish-green, barely exserted; ovary surrounded by a low, adnate, annular nectary; follicles broadly subreniform, broadly acuminate, 2–2.5 cm. long, 1–1.5 cm. broad, essentially smooth.

TYPE LOCALITY: Vera Cruz, Vera Cruz.
DISTRIBUTION: Tamaulipas to Oaxaca; Yucatan and Peten (province), Guatemala.

7. **Tabernaemontana longipes** Donn. Smith, Bot. Gaz. **24**: 397. 1897.

Small tree or shrub, 5–6 m. tall, wholly glabrous; leaves thinly membranaceous, obovate-elliptic to broadly oval, 8–24 cm. long, 3.5–12 cm. broad, obtusely subcaudate-acuminate, acutely cuneate at the base, the petioles 1–2 cm. long; inflorescence subcorymbose, lax, nearly or quite as long as the subtending leaves, bearing numerous small white flowers; pedicels 7–8 mm. long; calyx-lobes ovate, obtusish, 2.5–3.5 mm. long; corolla salverform, the tube 7–8 mm. long, about 1.5 mm. in diameter at the orifice, somewhat inflated at the base, the lobes oblong-dolabriform, obtuse, 10–15 mm. long, spreading; stamens inserted about the middle of the corolla-tube, the anthers margined with bluish-green, barely included; follicles unknown.

TYPE LOCALITY: Hacienda de La Concepción, Llanuras de Santa Clara, Costa Rica, alt. 180 meters.
DISTRIBUTION: Costa Rica.

8. **Tabernaemontana chrysocarpa** Blake, Contr. Gray Herb. **52**: 81. 1917.

Tabernaemontana amblyblasta Blake, Contr. U. S. Nat. Herb. **24**: 18. 1922.

Small tree or shrub, 3–10 m. tall, wholly glabrous; leaves firmly membranaceous to subcoriaceous, obovate to oblanceolate-elliptic, 2.5–25 cm. long, 1–9 cm. broad, obtuse to shortly and very obtusely subcaudate-acuminate, acutely cuneate at the base, the petioles 6–25 mm. long; inflorescence subcorymbose, usually very lax and predominantly equaling or surpassing the subtending leaves, bearing numerous yellowish-white flowers of medium size, the internodes relatively elongate; pedicels 7–15 mm. long; calyx-lobes broadly ovate, obtuse, 18–23 mm. long, closely imbricate; corolla salverform, the tube 6–9 mm. long, about 2 mm. in diameter and not inflated at the base, slightly constricted at the insertion of the stamens, the lobes oblong-dolabriform, obtuse, 10–12 mm. long, spreading; stamens inserted in the upper third of the corolla-tube, the anthers margined with bluish-green, barely included or the very tips slightly exserted, ovary surrounded at the base by a low, adnate, annular nectary; follicles ovoid-subreniform, 2–2.5 cm. long, 1.5–2 cm. broad, obtuse or with a very inconspicuous acumen, essentially smooth.

TYPE LOCALITY: Near Manatee Lagoon, British Honduras.
DISTRIBUTION: Oaxaca; British Honduras, Guatemala, and Honduras; Costa Rica and Panama.

9. **Tabernaemontana laurifolia** L. Sp. Pl. 210. 1753.

Tabernaemontana frutescens P. Br.; Miers, Apoc. S. Am. 57. 1878.

Shrub or small tree, occasionally attaining a height of 10 m., wholly glabrous; leaves membranaceous, broadly oval to oblong-elliptic, 4.5–17 cm. long, 3.5–10 cm. broad, obtuse to abruptly and obtusely acuminate, obtuse at the base, the petioles 10–25 mm. long; inflorescence decidedly congested, much shorter than the subtending leaves, subumbellate at the tip of a relatively elongate, sterile peduncle, bearing numerous yellow flowers of medium size; pedicels 2–8 mm. long; calyx-lobes broadly ovate, obtuse, 2.8–3 mm. long, imbricate; corolla salverform, the tube 15–16 mm. long, about 2.5 mm. in diameter at the base, slightly constricted at the insertion of the stamens, the lobes oblong-dolabriform, obtusish, 10–11 mm. long, spreading; stamens inserted in the upper fourth of the corolla-tube, the anthers margined with bluish-green, barely included; ovary surrounded at the base by a low, adnate, annular nectary; stigma 5-angled; follicles narrowly gibbous-ellipsoid, 3–4.5 cm. long, 1–1.25 cm. broad, narrowly acuminate, essentially smooth.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Jamaica and Grand Cayman.

10. **Tabernaemontana discolor** Sw. Prodr. 52. 1788.

Tabernaemontana ochroleuca Urban, Symb. Ant. **6**: 34. 1909.

Small glabrous tree, 7–10 m. tall; leaves membranaceous, oblong-elliptic to narrowly obovate-elliptic, 2.5–14 cm. long, 1.5–5 cm. broad, gradually and obtusely, almost subcaudately, acuminate, acute to obtusish at the base, the petioles 3–13 mm. long; inflorescence rather lax, subcorymbose, much shorter than the subtending leaves, bearing few small yellowish flowers of delicate texture; pedicels 3–7 mm. long; calyx-lobes ovate, obtusish, 2–2.5 mm. long, imbricate; corolla salverform, comparatively thin in texture, the tube 10–12 mm. long, about 2 mm. in diameter at the base, very slightly narrowed toward the insertion of the stamens, the lobes narrowly oblong-dolabriform, 1 cm. long, spreading, with an inconspicuous lateral acumen; stamens inserted in the upper third of the corolla-tube, the anthers margined with bluish-green, barely included; ovary surrounded at the base by a low, adnate, annular nectary; follicles narrowly gibbous-ellipsoid, 4–5 cm. long, 0.7–1 cm. broad, narrowly acuminate, smooth.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Jamaica.

11. **Tabernaemontana oppositifolia** (Spreng.) Urban, Symb. Ant. **4**: 493. 1910.

Rauwolfia oppositifolia Spreng. Neue Entdeck. **3**: 33. 1822.
Anabata odorata Spreng. Syst. 1: 582. 1825.
Tabernaemontana Berterii A. DC. in DC. Prodr. 8: 367. 1844.

Shrub or small tree, 2–12 m. tall; leaves membranaceous, obovate to obovate-elliptic, 4.5–17.5 cm. long, 2.5–7.5 cm. broad, obtuse to shortly and obtusely acuminate, broadly cuneate at the base, glabrous, the petioles 6–25 mm. long; inflorescence corymbose, much shorter than the subtending leaves, bearing numerous white or cream-colored, medium-sized flowers; pedicels 7–9 mm. long; calyx-lobes ovate, obtusish, 3.5–4.5 mm. long, imbricate, essentially glabrous; corolla salverform, comparatively thick in texture, the tube 12–13.5 mm. long, about 2 mm. in diameter at the base, slightly narrower at the orifice, the lobes obovate-dolabriform, 10–14 mm. long, spreading, with a very conspicuous lateral acumen; stamens inserted in the upper third of the corolla-tube, the anthers barely included, margined or tipped with bluish-green; ovary with an inconspicuous, adnate, annular nectary at the very base; follicles narrowly gibbous-ellipsoid, narrowly acuminate, 4.5–5.5 cm. long, 1–1.4 cm. broad, slightly striate longitudinally, otherwise smooth.

TYPE LOCALITY: Greater Antilles.
DISTRIBUTION: Puerto Rico.

12. **Tabernaemontana citrifolia** L. Sp. Pl. 210. 1753.

Tabernaemontana lanceolata "L.;" Miers, Apoc. S. Am. 55. 1878.

Shrub or small tree, 2–10 m. tall, wholly glabrous; leaves firmly membranaceous, narrowly oblong-elliptic to narrowly obovate-elliptic, 3.5–19 cm. long, 0.8–6.5 cm. broad, acuminate, acutely cuneate at the base, the petioles 3–15 mm. long; inflorescence corymbose, much branched, much shorter than the subtending leaves, bearing numerous to many white flowers of medium size; pedicels 7–12 mm. long; calyx-lobes narrowly ovate, acute to obtusish, 3–3.5 mm. long, somewhat imbricate; corolla salverform, the tube 12–15 mm. long, about 2 mm. in diameter at the base, somewhat narrower at the orifice, the lobes narrowly obovate-dolabriform, with an inconspicuous, obtuse, lateral acumen, 15–18 mm. long, spreading to somewhat reflexed; stamens inserted in the upper third of the corolla-tube, the anthers margined with bluish-green, slightly exserted; ovary surrounded at the base by a low, adnate, annular nectary; follicles narrowly ovoid-ellipsoid, 3.5–5 cm. long, 1–1.5 cm. broad, conspicuously acuminate, longitudinally striate, otherwise smooth.

TYPE LOCALITY: Tropics.
DISTRIBUTION: Cuba and Hispaniola, undoubtedly indigenous; Bahamas and the Lesser Antilles, possibly introduced.

13. **Tabernaemontana amygdalifolia** Jacq. Enum. Pl. Carib. 14. 1760.

Tabernaemontana acapulcensis Miers, Apoc. S. Am. 57. 1878.
Tabernaemontana cymosa Sessé & Moc. Fl. Mex. 47. 1893. Not *T. cymosa* Jacq. 1760.
Tabernaemontana dichotoma Sessé & Moc. Fl. Mex. 47. 1893. Not *T. dichotoma* Roxb. 1814.
Tabernaemontana Deamii Donn. Smith, Bot. Gaz. 52: 50. 1911.

Shrub or small tree, 2–15 m. tall, wholly glabrous; leaves membranaceous, oblong-elliptic to obovate-elliptic, 3–15 cm. long, 4–5.5 cm. broad, obtuse to abruptly acuminate, acutely or infrequently obtusely cuneate at the base, the petioles 5–13 mm. long; inflorescence corymbose, much branched, usually somewhat shorter than the subtending leaves, bearing few to numerous, creamy-white or waxy-white flowers of medium size; pedicels 10–20 mm. long; calyx-lobes ovate, acute to obtusish, 2.5–3 mm. long, somewhat imbricate; corolla salverform, the tube 14–16 mm. long, somewhat narrowed toward the orifice, the lobes narrowly obovate-dolabriform, somewhat reflexed, 16–22 mm. long, rather inconspicuously acuminate laterally; stamens inserted near the orifice of the corolla-tube, the anthers margined with bluish-green, about half-exserted; ovary surrounded at the base by an adnate annular nectary; follicles narrowly

ovoid-ellipsoid, 3–6 cm. long, 1.25–1.8 cm. broad, narrowly acuminate, longitudinally striate, otherwise smooth.

TYPE LOCALITY: [Cartagena, Colombia.]
DISTRIBUTION: Jalisco to Yucatan, and southward to Panama; also in Colombia and Venezuela.

DOUBTFUL SPECIES

TABERNAEMONTANA NEREIFOLIA Vahl, Eclog. 2: 21. 1798. This species, evidently a true *Tabernaemontana*, was described from Puerto Rico. On the basis of present records, *T. oppositifolia* (Spreng.) Urban is the only species of the genus which occurs there. Vahl's description, however, calls for foliage considerably narrower than that of the latter species, and in the absence of authentic specimens the name can not be placed definitely.

TABERNAEMONTANA TUXTLENSIS Sessé & Moc. Fl. Mex. 46. 1893. No specimen is indicated by this name in the herbarium of Sessé and Mociño at Madrid. The wholly unsatisfactory description might be construed to apply either to *T. alba* Miller or to *T. amygdalifolia* Jacq.

2. STEMMADENIA Benth. Bot. Voy. Sulph. 124. 1845.

Odontostigma A. Rich. in Sagra, Hist. Cub. 11: 86. 1853. Not *Odontostigma* Zoll. & Mor. 1845.

Shrubs to moderate-sized trees. Leaves opposite, not glandular. Inflorescence cymose, few-flowered. Calyx 5-parted, the lobes very unequal, closely imbricate, large and showy, usually conspicuously foliaceous, bearing many squamellae within. Corolla salverform or infundibuliform, large and showy, the limb 5-parted, sinistrorsely convolute. Anthers not connivent, without an enlarged connective. Ovary apocarpous, containing many ovules, surrounded by a fleshy annular nectary. Fruit follicular, leathery, containing numerous naked seeds embedded among fleshy arils.

Type species, *Stemmadenia glabra* Benth.

Corolla infundibuliform; bracts inserted at the summit of the pedicel, directly below the calyx.
  Corolla-throat broadly conic, at least half as broad as long.
    Calyx-lobes relatively short, 1–5 mm. long.
      Calyx-lobes oblong to ovate, acute, 4–5 mm. long. 1. *S. tomentosa.*
      Calyx-lobes subreniform, rounded, 1–2 mm. long. 2. *S. sinaloana.*
    Calyx-lobes relatively long, 15–25 mm. long.
      Corolla-tube about as long as the calyx; inflorescence glabrous. 3. *S. glabra.*
      Corolla-tube much surpassing the calyx; inflorescence pubescent. 4. *S. obovata.*
  Corolla-throat tubular or very narrowly conic, much longer than broad.
    Corolla-throat tubular, abruptly inflated from the tube and not greatly dilated toward the orifice.
      Corolla-tube about as long as the throat, their combined length 2.5–3.5 cm. 5. *S. Alfari.*
      Corolla-tube much shorter than the throat, their combined length 4.5–6 cm.
        Calyx-lobes 10–15 mm. long, strongly imbricate. 6. *S. Galeottiana.*
        Calyx-lobes 3–6 mm. long, scarcely imbricate. 7. *S. macrophylla.*
    Corolla-throat very narrowly conic, not abruptly inflated from the tube, and gradually dilated toward the orifice. 8. *S. macrantha.*
Corolla salverform; bracts inserted about the middle of the pedicel, not immediately subtending the calyx.
  Calyx about half as long as the corolla-tube, or shorter.
    Bracts scarious or only slightly foliaceous; calyx-lobes strongly imbricate.
      Calyx-lobes 4–6 mm. long, scarious or subcoriaceous, not foliaceous. 9. *S. decipiens.*
      Calyx-lobes 10–15 mm. long, conspicuously foliaceous. 10. *S. grandiflora.*
    Bracts conspicuously foliaceous; calyx-lobes spreading. 11. *S. eubracteata.*
  Calyx about equaling the corolla-tube, or slightly shorter.
    Calyx-lobes narrowly lanceolate; leaves glabrous beneath. 12. *S. Robinsonii.*
    Calyx-lobes ovate to ovate-oblong; leaves barbate in the axils of the lateral veins beneath. 13. *S. Donnell-Smithii.*

1. Stemmadenia tomentosa Greenman, Proc. Am. Acad. 35: 310. 1900.

Shrub or small tree, 2–12 m. tall; leaves membranaceous, oblong-elliptic to obovate-elliptic, 8–15 cm. long, 5–7 cm. broad, somewhat subcaudate-acuminate, obtuse at the base, irregularly pubescent along the midrib and principal veins above, densely and persistently tomentose beneath, or barbate in the axils of the lateral veins to glabrate beneath, the petioles

4–8 mm. long; inflorescence bearing 4–9 showy, cream-colored or yellowish flowers; pedicels 9–12 mm. long; calyx-lobes oblong to ovate, acute to obtusish, 4–5 mm. long, minutely papillate; corolla infundibuliform, the tube proper 20–25 mm. long, about 4 mm. in diameter at the base, the throat broadly conic, 15–25 mm. long, about 9–15 mm. in diameter at the orifice, the lobes obliquely obovate, 20–35 mm. long, spreading; follicles obovoid-subreniform, with an abrupt recurved acumen, 35–45 mm. long, 17–20 mm. broad, longitudinally striate and minutely verrucose.

TYPE LOCALITY: Near Zapotlan, Jalisco.
DISTRIBUTION: Chihuahua to Sinaloa and Nayarit; Vera Cruz; Morelos.

Stemmadenia tomentosa var. **Palmeri** (Rose & Standley) Woodson, Ann. Mo. Bot. Gard. **15**: 354. 1928. *Stemmadenia Palmeri* Rose; Greenman, Proc. Am. Acad. **35**: 311, hyponym. 1900. *Stemmadenia Palmeri* Rose & Standley; Standley, Contr. U. S. Nat. Herb. **23**: 1156. 1924. Leaves barbate in the axils of the lateral veins beneath, or wholly glabrate. TYPE LOCALITY: Imala, Sinaloa. DISTRIBUTION: Chihuahua to Sinaloa and Nayarit; Morelos. ILLUSTRATION: Ann. Mo. Bot. Gard. **15**: *pl. 47, f. 5*.

2. **Stemmadenia sinaloana** Woodson, Ann. Mo. Bot. Gard. **15**: 356. 1928.

Shrub or small tree; leaves firmly membranaceous, 8–12 cm. long, 5–6 cm. broad, obtuse to very shortly and obtusely subcaudate-acuminate, acutely cuneate at the base, glabrous to very slightly puberulent beneath, the petioles 7–10 mm. long; inflorescence bearing 1–7 handsome flowers; pedicels 4–6 mm. long; calyx-lobes ovate-reniform, rounded, 1–2 mm. long, papillate; corolla infundibuliform, the tube proper 15–20 mm. long, about 3.5 mm. in diameter at the base, the throat broadly conic, 13–17 mm. long, about 12 mm. in diameter at the orifice, the lobes broadly and obliquely obovate, spreading, 12–14 mm. long; follicles unknown.

TYPE LOCALITY: Rosario, Sinaloa.
DISTRIBUTION: Sinaloa.
ILLUSTRATION: Ann. Mo. Bot. Gard. **15**: *pl. 48, f. 1*.

3. **Stemmadenia glabra** Benth. Bot. Voy. Sulph. 124. 1845.

Shrub or small tree, 2–10 m. tall, essentially glabrous throughout; leaves firmly membranaceous, oblong-elliptic to obovate-elliptic, 14–20 cm. long, 7–8 cm. broad, obtuse to shortly subcaudate-acuminate, obtuse at the base, the petioles 5–10 mm. long; inflorescence bearing 1–4 handsome cream-colored flowers; pedicels 9–13 mm. long; calyx-lobes ovate, acute to obtusish, 15–25 mm. long; corolla infundibuliform, the tube proper 20–25 mm. long, about 4 mm. in diameter at the base, the throat broadly conic, 18–20 mm. long, about 13 mm. in diameter at the orifice, the lobes obliquely obovate, spreading, 12–18 mm. long; follicles obovoid-subreniform, 4.5–5 cm. long, 2.5–3.5 cm. broad, longitudinally striate and minutely verrucose.

TYPE LOCALITY: Gulf of Fonseca, Honduras.
DISTRIBUTION: Honduras and Salvador to Costa Rica.
ILLUSTRATIONS: Bot. Voy. Sulph. *pl. 44;* Ann. Mo. Bot. Gard. **15**: *pl. 47, f. 1*.

4. **Stemmadenia obovata** (H. & A.) K. Schumann, in E. & P. Nat. Pfl. 4^2: 149. 1895.

Bignonia obovata H. & A. Bot. Beech. Voy. 439. 1841.
Stemmadenia pubescens Benth. Bot. Voy. Sulph. 125. 1845.

Shrub or small tree, 2–15 m. tall; leaves firmly membranaceous, obovate to obovate-elliptic, 10–20 cm. long, 7–10 cm. broad, obtuse to obtusely acuminate, obtusely cuneate at the base, essentially glabrous, or minutely puberulent on both surfaces when young, the petioles 5–8 mm. long; inflorescence pubescent, bearing 1–6 showy yellowish flowers; pedicels 9–14 mm. long; calyx-lobes ovate to oblong-ovate, obtuse, 15–20 mm. long, essentially glabrous; corolla infundibuliform, the tube proper 15–25 mm. long, about 4 mm. in diameter at the base, the throat broadly conic, 15–30 mm. long, 15–25 mm. in diameter at the orifice, the lobes broadly and obliquely obovate, spreading, 13–24 mm. long; follicles obovoid-subreniform, 4–4.5 cm. long, 3–3.5 cm. broad, minutely verrucose.

TYPE LOCALITY: Realejo [Chinandega, Nicaragua].
DISTRIBUTION: Guerrero; Salvador, Nicaragua, and Costa Rica.

Stemmadenia obovata var. **mollis** (Benth.) Woodson, Ann. Mo. Bot. Gard. **15**: 358. 1928. *Stemmadenia mollis* Benth. Bot. Voy. Sulph. 125. 1845. *Stemmadenia calycina* Brand. Univ. Calif. Publ. Bot. **10**: 188. 1922. Both leaf-surfaces conspicuously pubescent, especially the lower. TYPE LOCALITY: Guayaquil, Ecuador. DISTRIBUTION: Southern Mexico to Costa Rica; also in Ecuador and Bolivia.

5. **Stemmadenia Alfari** (Donn. Smith) Woodson, Ann. Mo. Bot. Gard. **15**: 360. 1928.

Tabernaemontana Alfari Donn. Smith, Bot. Gaz. **24**: 396. 1897.
Stemmadenia Greenmanii Woodson, Ann. Mo. Bot. Gard. **15**: 360. 1928.

Small tree, 3–4 m. tall; leaves membranaceous, oval to obovate-elliptic, 7–11 cm. long, 3.5–5 cm. broad, abruptly and obtusely acuminate to obtusish, obtuse to acutely cuneate at the base, glabrous, the petioles 10–15 mm. long; inflorescence bearing 1–3 yellowish flowers of moderate size; pedicels 2–4 mm. long; calyx-lobes ovate, acute, 1.5–2.5 mm. long, essentially glabrous; corolla infundibuliform, the tube proper 12.5–18 mm. long, about 3 mm. in diameter at the base, the throat subtubular, 12.5–17 mm. long, about 7 mm. in diameter at the orifice, the lobes broadly and obliquely obovate, 12–15 mm. long, spreading; follicles unknown.

TYPE LOCALITY: Suerre, Llanuras de Santa Clara, Costa Rica; alt. 270 meters.
DISTRIBUTION: Costa Rica.

6. **Stemmadenia Galeottiana** (A. Rich.) Miers, Apoc. S. Am. 76. 1878.

Odontostigma Galeottiana A. Rich. in Sagra, Hist. Cuba **11**: 87. 1850.
Echites bignoniaeflora Schlecht. Linnaea **26**: 372. 1854.
Stemmadenia bignoniaeflora Miers, Apoc. S. Am. 76. 1878.
Stemmadenia insignis Miers, Apoc. S. Am. 76. 1878.
Stemmadenia bella Miers, Apoc. S. Am. 77. 1878.

Shrub, 1–3 m. tall; leaves firmly membranaceous, oval to obovate-elliptic, 9–14 cm. long, 4–6 cm. broad, obtuse to acutely subcaudate-acuminate, obtuse at the base, glabrous, the petioles 8–11 mm. long; inflorescence bearing 1–4 showy cream-colored flowers; pedicels 8–13 mm. long; calyx-lobes imbricate, ovate to obovate-oblong, obtusish to rounded, 10–15 mm. long, essentially glabrous; corolla infundibuliform, the tube proper 8–10 mm. long, about 2.5 mm. in diameter at the base, the throat subtubular, 40–55 mm. long, 7–10 mm. in diameter at the orifice, the lobes broadly and obliquely obovate, 20–25 mm. long, spreading; follicles ovoid-subreniform, acuminate, 2–2.5 cm. long, 1.5–1.7 cm. broad, irregularly verrucose.

TYPE LOCALITY: "Near Havana, Cuba."
DISTRIBUTION: Vera Cruz, Yucatan, Oaxaca, and Guatemala.
ILLUSTRATIONS: Sagra, Hist. Cub. **11**: *pl. 56;* Miers, Apoc. S. Am. *pl. 10, B;* Ann. Mo. Bot. Gard. **15**: *pl. 47, f. 2, 3.*

7. **Stemmadenia macrophylla** Greenman, Proc. Am. Acad. **35**: 310. 1900.

Shrub or small tree, 3–10 m. tall, essentially glabrous throughout; leaves firmly membranaceous, oblong-elliptic to obovate-elliptic, 15–20 cm. long, 5–8 cm. broad, obtusish to very abruptly and narrowly subcaudate-acuminate, obtusely cuneate at the base, the petioles 15–20 mm. long; inflorescence bearing 1–8 showy yellowish flowers; pedicels 2–4 mm. long; calyx-lobes scarcely imbricate, ovate to oblong-obovate, acute to obtuse, 3–6 mm. long; corolla infundibuliform, the tube proper 15–20 mm. long, about 2.5 mm. in diameter at the base, the throat subtubular, 25–30 mm. long, about 7–9 mm. in diameter at the orifice, the lobes obliquely ovate-oblong, 22–28 cm. long, spreading; follicles unknown.

TYPE LOCALITY: Pansamalá, Alta Verapaz, Guatemala; alt. 1100 meters.
DISTRIBUTION: Guatemala.

8. **Stemmadenia macrantha** Standley, Field Mus. Publ. Bot. **4**: 253. 1929.

Small tree, 8–9 m. tall, glabrous throughout; leaves firmly membranaceous, oblong-elliptic to obovate-elliptic, 8–12 cm. long, 2–2.5 cm. broad, abruptly and narrowly subcaudate-acuminate, acutely cuneate at the base, the petioles 2–4 mm. long; inflorescence bearing 1 or 2 showy yellowish flowers; pedicels 5–6 mm. long; calyx-lobes ovate-lanceolate, acute to acuminate, 4–6 mm. long; corolla infundibuliform, the tube proper 15–17 mm. long, about 2.5 mm. in diameter at the base, the throat very narrowly conic, gradually dilated to the orifice, 40–45 mm. long, about 7–8 mm. in diameter at the orifice, the lobes obliquely obovate, 40–42.5 mm. long, spreading; follicles unknown.

TYPE LOCALITY: Kankintoe, Bocas del Toro, Panama.
DISTRIBUTION: Known only from the type locality.

9. **Stemmadenia decipiens** Woodson, Ann. Mo. Bot. Gard. **15**: 363. 1928.

Shrub or small tree, 2–10 m. tall, essentially glabrous throughout; leaves firmly membranaceous, broadly oval to ovate-elliptic, 7–10 cm. long, 4–7 cm. broad, acute to obtusish, obtuse at the base, the petioles 5–7 mm. long; inflorescence bearing 3–9 yellowish flowers of medium size; pedicels 3–5 mm. long; calyx-lobes decidedly imbricate, scarious or subcoriaceous, ovate, acute to obtusish, 4–6 mm. long; corolla salverform, the tube 20–30 mm. long, about 2.5 mm. in diameter at the base, the lobes obliquely obovate, 12–18 mm. long, somewhat reflexed; follicles unknown.

TYPE LOCALITY: Between Rosario and Colomas, Sinaloa.
DISTRIBUTION: Sinaloa and Oaxaca; Nicaragua.

10. **Stemmadenia grandiflora** (Jacq.) Miers, Apoc. S. Am. 75. 1878.

Tabernaemontana grandiflora Jacq. Enum. Pl. Carib. 14. 1760.
Tabernaemontana litoralis H.B.K. Nov. Gen. & Sp. **3**: 228. 1819.

Shrub or small tree, 2–5 m. tall, wholly glabrous; leaves membranaceous, obovate to oblanceolate-elliptic, 6–9 cm. long, 3–5 cm. broad, shortly and acutely subcaudate-acuminate to obtusish, acutely cuneate to obtusish at the base, the petioles 5–7 mm. long; inflorescence bearing 2–9 yellowish flowers of medium size; pedicels 4–7 mm. long; calyx-lobes imbricate, ovate to oblong-ovate, acute to obtusish, 10–15 mm. long, conspicuously foliaceous; corolla salverform, the tube 25–35 mm. long, about 3.5 mm. in diameter at the base, the lobes obliquely obovate, 12–18 mm. long, spreading; follicles obovoid-subreniform, shortly acuminate, 3–3.5 cm. long, 2–3 cm. broad, verrucose.

TYPE LOCALITY: [Cartagena, Colombia.]
DISTRIBUTION: Sinaloa and Nayarit; Nicaragua, Costa Rica, and Panama; also in northern South America.
ILLUSTRATION: Ann. Mo. Bot. Gard. **15**: *pl. 47, f. 4.*

11. **Stemmadenia eubracteata** Woodson, Ann. Mo. Bot. Gard. **15**: 368. 1928.

Shrub or small tree, essentially glabrous throughout; leaves firmly membranaceous, oblong-elliptic, 6–8 cm. long, 2–3 cm. broad, obtusely subcaudate-acuminate to obtusish, rather broadly cuneate at the base, the petioles 4–5 mm. long; inflorescence bearing 2–5 rather showy yellowish flowers; pedicels 7–9 mm. long; bracts conspicuously foliaceous; calyx-lobes conspicuously foliaceous, obovate-elliptic, abruptly acuminate, 8–10 mm. long, spreading; corolla salverform, the tube 22–25 mm. long, about 3 mm. in diameter at the base, the lobes obliquely obovate, 14–16 mm. long, somewhat reflexed; follicles unknown.

TYPE LOCALITY: Volcan Tecuamburro, Santa Rosa, Guatemala; alt. 2000 meters.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Ann. Mo. Bot. Gard. **15**: *pl. 49, f. 2.*

12. **Stemmadenia Robinsonii** Woodson, Ann. Mo. Bot. Gard. **15**: 369. 1928.

Shrub or small tree, essentially glabrous throughout; leaves firmly membranaceous, oval to obovate-elliptic, 12–16 cm. long, 4–5 cm. broad, acuminate to obtusish, rather broadly cuneate at the base, the petioles 1–3 mm. long; inflorescence bearing 2 or 3 rather showy yellowish flowers; pedicels 4–8 mm. long; calyx-lobes rather narrowly lanceolate, acute to obtusish, scarious or only slightly foliaceous, 15–20 mm. long; corolla salverform, the tube 20–25 mm. long, about 3.5 mm. in diameter at the base, the lobes obliquely obovate, 10–15 mm. long, somewhat reflexed; follicles unknown.

TYPE LOCALITY: Talamanca Mountains, Costa Rica.
DISTRIBUTION: Known only from the type locality.

13. **Stemmadenia Donnell-Smithii** (Rose) Woodson, Ann. Mo. Bot. Gard. **15**: 369. 1928.

Tabernaemontana Donnell-Smithii Rose; Donn. Smith, Bot. Gaz. **18**: 206. 1893.
Tabernaemontana Donnell-Smithii var. *costaricensis* Donn. Smith, Bot. Gaz. **24**: 397. 1897.

Shrub or small tree, 3–15 m. tall; leaves firmly membranaceous, elliptic to obovate-elliptic, 6–12 cm. long, 3–4 cm. broad, obtusely subcaudate-acuminate to obtusish, obtuse to acutely cuneate at the base, essentially glabrous above, minutely barbellate in the axils of the lateral veins beneath, the petioles 1–3 mm. long; inflorescence bearing 1–5 rather showy yellowish flowers; pedicels 10–13 mm. long; calyx-lobes ovate to ovate-oblong, obtuse or obtusish, 20–26 mm. long, scarious, yellowish; corolla salverform, the tube 24–30 mm. long, about 3.5 mm. in diameter at the base, the lobes obliquely obovate, 15–18 mm. long, somewhat reflexed; follicles ovoid-subreniform, 3.5–5.5 cm. long, 3–4 cm. broad, conspicuously verrucose.

TYPE LOCALITY: Escuintla, Escuintla, Guatemala; alt. 330 meters.
DISTRIBUTION: Guerrero; British Honduras and Guatemala, and southward to Costa Rica.

3. **PLUMERIA** L. Sp. Pl. 209. 1753.

Trees of small to moderate size, usually with strikingly corky, fistulose stems. Leaves alternate. Inflorescence terminal or pseudo-lateral, fastigiately thyrsiform, usually greatly condensed, bearing few to many, showy, waxy flowers. Calyx 5-parted, cleft nearly to the receptacle, the lobes equal or subequal, without squamellae, but always tipped with a glandular epithelium. Corolla salverform, not appendaged within, the limb equally 5-parted. Stamens wholly included, the anthers not connivent, without an enlarged connective. Carpels 2, separate, conspicuously subinferior, bearing many ovules, not accompanied by a nectary. Follicles 2, separate, containing many dry, basally winged seeds.

Type species, *Plumeria rubra* L.

Corolla subinfundibuliform, the tube gradually dilated above the insertion of the stamens to an orifice about twice the diameter of the base; Martinique. — 1. *P. pudica.*
Corolla strictly salverform, the diameter of the orifice about equaling that of the base.
  Leaves conspicuously petiolate, the secondary veins continuously subarcuate to subhorizontal from midrib to margin, or very inconspicuously decurrent; secondary and tertiary veins more or less immersed on the upper surface.
    Inflorescence usually relatively lax, corymbose, the secondary peduncles usually well developed and about equal in length; corolla-lobes fully convolute in the bud, the aestivation conspicuously spiral; flowers white, yellow, rose, or parti-colored. — 2. *P. rubra.*
    Inflorescence usually congested, subumbellate, the secondary peduncles usually greatly shortened; corolla-lobes about half-convolute in the bud, essentially longitudinal in aestivation, or scarcely spiral; flowers apparently always white with a yellow eye.
      Leaves obovate to obovate-oblong, rounded, emarginate, or very broadly obtuse at the apex, rarely very shortly and abruptly acuminate-submucronulate, coriaceous to subcoriaceous, rarely firmly membranaceous, the secondary veins anastomosing distally to form a well developed marginal vein. — 3. *P. obtusa.*

Leaves lanceolate to oblong-lanceolate or subfiliform, narrowly and gradually acute to acuminate, firmly membranaceous to subcoriaceous, the secondary veins anastomosing distally, but not forming a well developed marginal vein.
Leaves linear-lanceolate to subfiliform, 1–10 mm. broad, firmly membranaceous, wholly glabrous; Cuba. 4. *P. filifolia.*
Leaves lanceolate to oblong-lanceolate, 15–70 mm. broad, subcoriaceous, usually densely pubescent beneath; Puerto Rico and the Lesser Antilles. 5. *P. alba.*
Leaves subsessile, the secondary veins decurrent, leaving the midrib at a narrowly acute angle, subarcuate or oblique to the margin; secondary and tertiary veins very prominent on both surfaces. 6. *P. subsessilis.*

NOTE: Variant spellings, frequently used by many authors, are *Plumiera* and *Plumieria*.

1. **Plumeria pudica** Jacq. Sel. Stirp. Am. 37. 1763.

Plumeria caracasana J. R. Johnston, Contr. U. S. Nat. Herb. **12**: 108. 1908.
Plumeria cochleata Blake, Contr. Gray Herb. **53**: 47. 1918.

Small tree or shrub, 2–3 m. tall; leaves delicately membranaceous, obovate-oblong, more or less cochleate or pandurate, 7–30 cm. long, 3–15 cm. broad, obtuse to shortly acuminate, obtusely to acutely cuneate at the base, essentially glabrous above, more or less pilose to essentially glabrate beneath, the petioles scarcely manifest; inflorescence congested and subumbellate, the secondary peduncles scarcely manifest, bearing several showy yellowish-white flowers; pedicels 8–12.5 mm. long; calyx-lobes deltoid-subquadrate, rounded to truncate, 1.5–2.5 mm. long; corolla subinfundibuliform, the tube 15–25 mm. long, about 2 mm. in diameter at the base, gradually dilated above the insertion of the stamens to an orifice about 4 mm. in diameter, the lobes obovate to obovate-oblong, 20–35 mm. long, about half-convolute in the bud, longitudinal in aestivation or scarcely spiral; follicles 15–17 cm. long, about 2 cm. broad.

TYPE LOCALITY: Gardens, Curaçao.
DISTRIBUTION: Martinique (possibly introduced); also in Colombia and Venezuela.

2. **Plumeria rubra** L. Sp. Pl. 209. 1753.

Plumeria purpurea R. & P. Fl. Per. **2**: 20. 1799.
Plumeria incarnata R. & P. Fl. Per. **2**: 20. 1799.
Plumeria carinata R. & P. Fl. Per. **2**: 21. 1799.
Plumeria Milleri G. Don. Gen. Hist. **4**: 93. 1838.
Plumeria incarnata var. *Milleri* A. DC. in DC. Prodr. **8**: 390. 1844.
Plumeria loranthifolia Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 42. 1860.

Small to medium-sized tree, 1.5–8 m. tall; leaves firmly membranaceous, obovate to oblong-oblanceolate, 12–50 cm. long, 3.5–15 cm. broad, acuminate to obtuse, obtuse to acutely cuneate at the base, glabrous above, glabrous to rather densely and generally pubescent beneath, the petioles 1.5–11 cm. long; inflorescence usually rather lax, corymbose, the secondary peduncles usually well developed and about equal in length, 2–15 cm. long, glabrous or more or less pubescent, bearing numerous showy, fragrant, red or rose-colored flowers, the lobes or throat of the corolla occasionally yellow to white; pedicels 1–2 cm. long; calyx-lobes ovate-quadrate to ovate-deltoid, obtuse to truncate, occasionally very shortly and abruptly submucronulate, 1–2 mm. long; corolla strictly salverform, the tube 10–25 mm. long, about 1.5–2.5 mm. in diameter at both base and orifice, the lobes usually broadly obovate, rounded to obtusish, 25–60 mm. long, wholly convolute in the bud, the aestivation manifestly spiral; follicles 9–30 cm. long, 1.25–4 cm. broad.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Southern Mexico and Central America; widely cultivated since early European colonization of America and now distributed virtually throughout the tropics and subtropics of both hemispheres.
ILLUSTRATIONS: Bot. Mag. *pl. 279*; Bot. Reg. *pl. 780.*

Plumeria rubra f. **lutea** (R. & P.) Woodson, Ann. Mo. Bot. Gard. **25**: 211. 1938. *Plumeria lutea* R. & P. Fl. Per. **2**: 21. 1799. *Plumeria bicolor* R. & P. Fl. Per. **2**: 21. 1799. *Plumeria Jamesonii* Hook. Bot. Mag. *pl. 4751.* 1853. Corolla predominantly yellow, occasionally flushed with rose. TYPE LOCALITY: Gardens, Peru. DISTRIBUTION: Probably indigenous to southern Mexico or Central America; widely distributed in the tropics. ILLUSTRATION: Bot. Mag. *pl. 5779.*

Plumeria rubra f. **acutifolia** (Poir.) Woodson, Ann. Mo. Bot. Gard. **25**: 211. 1938. *Plumeria acuminata* Ait. Hort. Kew. ed. 2. **2**: 70. 1811. *Plumeria acutifolia* Poir. in Lam. Encyc. Suppl.

2: 667. 1812. *Plumeria mollis* H.B.K. Nov. Gen. & Sp. **3**: 230. 1819. *Plumeria mexicana* Lodd. Bot. Cab. *pl. 1024*. 1825. *Plumeria Lambertiana* Lindl. Bot. Reg. **16**: *pl. 1378*. 1831. *Plumeria arborescens* G. Don, Gen. Hist. **4**: 93. 1838. *Plumeria megaphylla* A. DC. in DC. Prodr. **8**: 391. 1844. Corolla predominantly white, occasionally flushed with rose, or with a yellow eye. TYPE LOCALITY: Cochin China. DISTRIBUTION: Throughout the range of the species. ILLUSTRATIONS: Bot. Cab. *pl. 1024;* Bot. Reg. *pl. 1378*.

Plumeria rubra f. **tricolor** (R. & P.) Woodson, Ann. Mo. Bot. Gard. **25**: 211. 1938. *Plumeria tricolor* R. & P. Fl. Per. **2**: 20. 1799. *Plumeria Kerrii* G. Don, Gen. Hist. **4**: 93. 1838. Corolla predominantly white or pale yellow, the outer margin of the lobes rose, and usually with a yellow eye. TYPE LOCALITY: Gardens, Peru. DISTRIBUTION: Throughout the range of the species, but less frequent. ILLUSTRATION: Bot. Reg. *pl. 510*.

3. **Plumeria obtusa** L. Sp. Pl. 210. 1753.

Plumeria Tenorii Gasp. Oss. Piante Orto Bocc. 20. 1832.
Plumeria obtusa var. *parviflora* Griseb. Mem. Am. Acad. II. **8**: 519. 1862.
Plumeria obtusa var. *laevis* Griseb. Mem. Am. Acad. II. **8**: 519. 1862.
Plumeria clusioides Griseb. Cat. Pl. Cub. 171. 1866.
Plumeria emarginata Griseb. Cat. Pl. Cub. 171. 1866.
Plumeria clusioides var. *parvifolia* Maza, Ann. Soc. Esp. Hist. Nat. **23**: 273. 1895.
Plumeria Krugii Urban, Symb. Ant. **1**: 387. 1899.
Plumeria bahamensis Urban, Symb. Ant. **1**: 387. 1899.
Plumeria portoricensis Urban, Symb. Ant. **1**: 387. 1899.
Plumeria Marchii Urban, Symb. Ant. **3**: 334. 1902.
Plumeria inaguensis Britton, Bull. N. Y. Bot. Gard. **3**: 448. 1905.
Plumeria jamaicensis Britton, Bull. Torrey Club **37**: 356. 1910.
Plumeria confusa Britton, Bull. Torrey Club **42**: 505. 1915.
Plumeria nipensis Britton, Bull. Torrey Club **42**: 505. 1915.
Plumeria venosa Britton, Bull. Torrey Club **42**: 506. 1915.
Plumeria barahonensis Urban, Repert. Sp. Nov. **14**: 341. 1916.
Plumeria apiculata Urban, Repert. Sp. Nov. **16**: 36. 1919.
Plumeria montana Britton; Britton & Wilson, Bull. Torrey Club **50**: 46. 1923.
Plumeria Ostenfeldii Urban, Dansk Bot. Ark. **4**[7]: 8. 1924.
Plumeria beatensis Urban, Dansk Bot. Ark. **4**[7]: 9. 1924.
Plumeria dictyophylla Urban, Symb. Ant. **9**: 239. 1924.
Plumeria Ekmanii Urban, Symb. Ant. **9**: 239. 1924.
Plumeria estrellensis Urban, Symb. Ant. **9**: 240. 1924.
Plumeria cayensis Urban, Repert. Sp. Nov. **21**: 218. 1925.
Plumeria cubensis Urban, Repert. Sp. Nov. **21**: 219. 1925.
Plumeria cuneifolia Helwig; Urban, Ark. Bot. **22A**[10]: 44. 1929.

Small tree or shrub, 2–6 m. tall; leaves usually coriaceous or subcoriaceous, or infrequently firmly membranaceous, obovate to obovate-oblong, varying greatly in outline, 3.5–18 cm. long, 1–8.5 cm. broad, rounded, emarginate, or very shortly acuminate-submucronulate at the apex, obtuse or rounded to acutely cuneate at the base, usually more or less lustrous above, wholly glabrous or essentially so, the secondary veins oblique, essentially straight, or infrequently broadly arcuate, the marginal veins well developed, usually only slightly sinuous, the petioles 1–4 cm. long; inflorescence usually congested, subumbellate, the secondary peduncles usually greatly shortened, bearing several to numerous showy white flowers with a yellow eye; pedicels 7–10 mm. long; calyx-lobes ovate-subdeltoid, rounded to truncate or very inconspicuously acuminate, 1–1.5 mm. long, glabrous to inconspicuously and sparsely pilosulous; corolla strictly salverform, the tube 9–20 mm. long, 1–1.5 mm. in diameter at the base, the lobes usually obovate-oblong, or infrequently obovate, obtuse or rounded, 15–45 mm. long, about half-convolute in bud, the aestivation longitudinal or only slightly spiral; follicles stout, 6.5–24 cm. long, 1–2 cm. broad.

TYPE LOCALITY: Tropical America.
DISTRIBUTION: Bahamas and Greater Antilles; Honduras (Swan Islands).
ILLUSTRATION: Lam. Tab. Encyc. *pl. 173, f. 2*.

Plumeria obtusa var. **sericifolia** (C. Wright) Woodson, Ann. Mo. Bot. Gard. **25**: 214. 1938. *Plumeria tuberculata* Lodd. Bot. Cab. *pl. 681*. 1823. *Plumeria hypoleuca* Gasp. Oss. Piante Orto Bocc. 20. 1833. *Plumeria sericifolia* C. Wright; Griseb. Cat. Pl. Cub. 171. 1866. *Plumeria emarginata* var. *sericifolia* Maza, Anal. Soc. Esp. Hist. Nat. **23**: 273. 1894. *Plumeria gibbosa* Urban, Symb. Ant. **3**: 338. 1902. *Plumeria domingensis* Urban, Symb. Ant. **3**: 338. 1902. *Plumeria lanata* Britton, Bull. Torrey Club **42**: 504. 1915. *Plumeria trinitensis* Britton, Bull. Torrey Club **42**: 506. 1915. *Plumeria pilosula* Urban, Symb. Ant. **9**: 238. 1924. *Plumeria casildensis* Urban, Repert. Sp. Nov. **21**: 218. 1925. *Plumeria leuconeura* Urban, Repert. Sp. Nov. **24**: 8. 1927. *Plumeria multiflora* Standley, Field Mus. Publ. Bot. **8**: 33. 1930. Lower surface of the leaves and frequently the petioles and inflorescence more or less conspicuously pubescent. TYPE LOCALITY: Cuba. DISTRIBUTION: Bahamas, Cuba and Hispaniola; Yucatan and British Honduras. ILLUSTRATION: Bot. Cab. *pl. 681*.

4. **Plumeria filifolia** Griseb. Mem. Am. Acad. II. **8**: 519. 1862.

Plumeria stenophylla Urban, Symb. Ant. **9**: 237. 1924.

Small tree; leaves firmly membranaceous, linear-lanceolate to subfiliform, 13–18 cm. long, 1–10 mm. broad, attenuate at both base and apex, the petioles 5–20 mm. long; inflorescence congested, subumbellate, bearing several showy white flowers with a yellow eye, the secondary peduncles greatly shortened, 4–15 mm. long; pedicels 7–10 mm. long; calyx-lobes ovate-deltoid, rounded to very inconspicuously acuminate-submucronulate, 0.8–1.2 mm. long; corolla strictly salverform, the tube 10–13 mm. long, about 1 mm. in diameter at the base, the lobes obovate-oblong to narrowly obovate, obtuse or rounded, 20–25 mm. long, about half-convolute in the bud, the aestivation longitudinal or only slightly spiral; follicles 5–6 cm. long, about 1 cm. broad.

TYPE LOCALITY: Nouvelle Sophie [Oriente], Cuba.
DISTRIBUTION: Oriente, Cuba.

5. **Plumeria alba** L. Sp. Pl. 210. 1753.

Plumeria alba var. *Jacquiniana* A. DC. in DC. Prodr. 8: 392. 1844.

Small to medium-sized tree, 2.5–13 m. tall; leaves firmly membranaceous to subcoriaceous, oblong-lanceolate, or rarely broadly oblong-elliptic, 11–30 cm. long, 1.5–7 cm. broad, long-acuminate, obtuse to rounded at the base, the margins frequently revolute and puckered when dry, usually densely puberulent beneath or rarely glabrate, the secondary veins subhorizontal, anastomosing toward the margin but without a definite marginal vein, the petioles 15–65 mm. long; inflorescence usually greatly congested, subumbellate, the secondary peduncles ordinarily greatly shortened, bearing several to numerous, showy, white flowers with a yellow eye; pedicels 7–10 mm. long; calyx-lobes ovate-subquadrate, rounded to broadly acuminate, 1.5–2 mm. long; corolla strictly salverform, the tube 10–22 mm. long, 1–1.5 mm. in diameter at the base, the lobes obovate to obovate-oblong, 25–45 mm. long, about half-convolute in the bud, the aestivation longitudinal or only slightly spiral; follicles 9–16 cm. long, 1–1.5 cm. broad.

TYPE LOCALITY: "Jamaica and Surinam."
DISTRIBUTION: Puerto Rico, and eastward and southward in the Lesser Antilles to Grenada.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 174, f. 12;* Jacq. Sel. Stirp. Pict. *pl. 38.*

6. **Plumeria subsessilis** A. DC. in DC. Prodr. **8**: 393. 1844.

Plumeria Berterii A. DC. in DC. Prodr. 8: 393. 1844.
Plumeria Jaegeri Muell.-Arg. Linnaea **30**: 397. 1860.

Shrub or small tree, 1–4 m. tall; leaves firmly membranaceous to chartaceous, broadly oblong-obovate to essentially oblong, 8–24 cm. long, 2.5–5.5 cm. broad, obtuse to very shortly acuminate, obtuse to rounded or subtruncate at the base, somewhat lustrous on both sides, glabrous throughout, or very inconspicuously pilosulous on the veins beneath, the veins very conspicuous on both sides, the secondary veins broadly arcuate from the margin, then abruptly entering the midrib at an acute decurrent angle, the marginal veins rather inconspicuous and poorly developed, the petioles 1–3 mm. long; inflorescence more or less congested and sub-umbellate, the secondary peduncles ordinarily greatly shortened, bearing several to numerous showy white flowers with a yellow eye; pedicels 5–7 mm. long; calyx-lobes ovate-subdeltoid, broadly obtuse to rounded, sometimes acutish, 1–1.5 mm. long; corolla strictly salverform, the tube 15–25 mm. long, 1–1.5 mm. in diameter at the base, the lobes obovate, or rarely obovate-oblong, obtuse or rounded, 25–40 mm. long, nearly wholly convolute in the bud, the aestivation somewhat spiral in typical specimens; follicles 10–12 cm. long, about 1 cm. broad.

TYPE LOCALITY: Antilles.
DISTRIBUTION: Hispaniola.
ILLUSTRATION: Plum. Pl. Am. *pl. 232.*

DOUBTFUL SPECIES

The following names apparently refer to hybrids of *Plumeria subsessilis* A. DC. with *Plumeria obtusa* L., or perhaps with *Plumeria obtusa* var. *sericifolia* (C. Wright) Woodson. All are based upon specimens collected in Haïti.

PLUMERIA BIGLANDULOSA Urban, Symb. Ant. **3**: 337. 1902.
PLUMERIA PAULINAE Urban, Symb. Ant. **3**: 336. 1902.
PLUMERIA STENOPETALA Urban, Symb. Ant. **3**: 335. 1902.
PLUMERIA STENOPETALA var. *angustissima* Urban, Ark. Bot. **17**[7]: 50. 1921.
PLUMERIA DISCOLOR Urban & Ekman; Urban, Ark. Bot. **20A**[5]: 36. 1926.
PLUMERIA TROUINENSIS Urban & Ekman; Urban, Ark. Bot. **20A**[5]: 37. 1926.
PLUMERIA LONGIFLORA Urban & Ekman; Urban, Ark. Bot. **20A**[5]: 38. 1926.

4. **HIMATANTHUS** Hoffmgg.; R. & S. Syst. Veg. **5**: 221. 1819.

Small or medium-sized trees, with terete, usually fistulose branches. Leaves alternate. Inflorescence terminal or pseudo-terminal, rather regularly thyrsiform, the secondary peduncles alternate and usually rather distant, bearing several to numerous handsome, white flowers. Bracts large and conspicuous, somewhat foliaceous or petaloid, caducous. Calyx without squamellae, essentially obsolete in some species, or cleft nearly to the receptacle into 1–5 acute to acuminate, eglandular lobes of unequal and variable size, the lobes never closely imbricate. Corolla salverform, not appendaged within, the limb equally 5-parted. Stamens wholly included, the anthers not connivent, without an enlarged connective. Carpels 2, separate, distinctly subinferior, containing many ovules, not accompanied by a nectary. Follicles 2, separate; seeds numerous, dry, surrounded by an essentially concentric papery wing.

Type species, *Himatanthus rigida* Hoffmgg.

1. **Himatanthus articulata** (Vahl) Woodson, Ann. Mo. Bot. Gard. **25**: 196. 1938.

Plumeria articulata Vahl, Eclog. **2**: 20. 1798.
Himatanthus rigida Hoffmgg.; R. & S. Syst. Veg. **5**: 221. 1819.
Plumeria microcalyx Standley, Field Mus. Publ. Bot. **4**: 254. 1929.

Tree, 7–10 m. tall, wholly glabrous; leaves firmly membranaceous to subcoriaceous, obovate to obovate-elliptic, 10–24 cm. long, 5.5–9 cm. broad, obtusish to very shortly and obtusely acuminate, obtusely cuneate at the base, lustrous above, the secondary veins broadly arcuate, anastomosing distally, but without a definite marginal vein, the petioles 18–30 mm. long; inflorescences somewhat surpassing the subtending leaves, bearing numerous, rather showy, white flowers; bracts abruptly subcaudate-acuminate, 13–17 mm. long; pedicels 3–4 mm. long; calyx-lobes 4 or 5, 0.25–2.5 mm. long; corolla salverform, the tube 15–18 mm. long, about 1 mm. in diameter at the base, the lobes obovate-oblong, 13–17 mm. long; follicles 20–24 cm. long, about 2.5 cm. broad.

TYPE LOCALITY: Guiana.
DISTRIBUTION: San Blas and Darien, Panama; also from Venezuela to the Guianas and northeastern Brazil.

5. **ASPIDOSPERMA** Mart. & Zucc.; Mart. Nov. Gen. **1**: 57. 1824.

Trees, or rarely shrubs. Leaves alternate (in North American species), not glandular. Inflorescence compound-corymbose to thyrsiform, bearing many small flowers. Calyx 5-parted, cleft nearly to the receptacle, without squamellae, the lobes essentially equal. Corolla salverform. Anthers not connivent, without an enlarged connective. Ovary apocarpous, surrounded by a low annular nectary, containing many ovules in 2 series. Follicles greatly compressed; seeds strongly compressed, with a broad, papery, eccentric or essentially concentric wing.

Type species, *Aspidosperma tomentosum* Mart. & Zucc.

Trees; leaves relatively large, 6–13 cm. long; follicles relatively large, 7.5–18 cm. long, about as broad as long, or somewhat broader; Central America.
  Follicles glabrous or essentially so; secondary veins of the leaves relatively distant; latex white.
    Leaves broadly oval; cotyledons ovate. 1. *A. megalocarpon.*
    Leaves narrowly obovate-oblong; cotyledons orbicular. 2. *A. Lundellianum.*
  Follicles densely and minutely ferruginous-velutinous; secondary veins of the leaves very crowded; latex dark-red. 3. *A. cruentum.*
Shrubs; leaves relatively small, 4–6 cm. long; follicles relatively small, 6–8 cm. long, oblong-obovate, longer than broad; Hispaniola. 4. *A. domingense.*

1. **Aspidosperma megalocarpon** Muell.-Arg. Linnaea **30**: 400. 1860.

Large tree with white latex; leaves alternate, subcoriaceous, broadly oval, 8–12 cm. long, 4–7 cm. broad, shortly and obtusely acuminate to obtuse, glabrous, the secondary veins arcuate and relatively distant, the petioles 10–15 mm. long; follicles orbicular-subreniform, obscurely acuminate, 8–9 cm. long, 7–8 cm. broad, minutely verrucose, otherwise glabrous; seeds orbicular, 7–8 cm. in diameter, the cotyledons broadly ovate, rounded, about 2 cm. long and broad.

TYPE LOCALITY: Colipa [Vera Cruz].
DISTRIBUTION: Vera Cruz; British Honduras and Guatemala.

2. **Aspidosperma Lundellianum** Woodson, Am. Jour. Bot. **22**: 684. 1935.

Large tree with white latex; leaves alternate, coriaceous to subcoriaceous, rather narrowly obovate-oblong, 9–13 cm. long, 2.5–4.5 cm. broad, acute to obtuse, glabrous, the secondary veins oblique, relatively distant, the petioles 17–20 mm. long; follicles very broadly reniform, inconspicuously acuminate, 7.5–8 cm. long, 5.5–6 cm. broad, minutely verrucose, otherwise glabrous; seeds orbicular, 5.3–6 cm. in diameter, the cotyledons orbicular, 2 cm. in diameter.

TYPE LOCALITY: Tuxpena, Campeche.
DISTRIBUTION: Campeche and Yucatan.

3. **Aspidosperma cruentum** Woodson, Am. Jour. Bot. **22**: 684. 1935.

Large tree with dark-red latex; leaves alternate, coriaceous, oblong-elliptic, 6–8 cm. long, 2.5–3 cm. broad, obtuse, glabrous, the secondary veins oblique, very crowded, the petioles 15–17 mm. long; follicles obovate-reniform, obscurely acuminate, 16–18 cm. long, 8–10 cm. broad, very densely and minutely ferruginous-velutinous; seeds orbicular, about 8–8.5 cm. in diameter, the cotyledons ovate-cordate, about 2 cm. long and 1.7 cm. broad.

TYPE LOCALITY: Vaxactum, Peten, Guatemala.
DISTRIBUTION: British Honduras; Peten (province), Guatemala.

4. **Aspidosperma domingense** Urban, Symb. Ant. **5**: 460. 1908.

Shrub, 2–3 m. tall, wholly glabrous; leaves alternate, coriaceous, obovate to obovate-oblong, 4–5.5 cm. long, 2–3 cm. broad, rounded to obscurely emarginate at the apex, very lustrous above, the secondary veins oblique, crowded, the petioles 4–6 mm. long; follicles oblong-obovate, 6–8 cm. long, 1.5–2 cm. broad, essentially glabrous; seeds unknown.

TYPE LOCALITY: Near Santiago, Santo Domingo; alt. 300 m.
DISTRIBUTION: Hispaniola.

6. **CAMERARIA** L. Sp. Pl. 210. 1753.

Shrubs. Leaves opposite, not glandular. Inflorescence terminal, cymose, few-flowered. Calyx without squamellae, 5-cleft nearly to the receptacle, the lobes essentially equal. Corolla salverform, white, relatively small, not appendaged within. Anthers not connivent, without an enlarged connective. Ovary apocarpous, without a nectary, containing 1–4 ovules. Fruit apocarpous, indehiscent, samara-like, with a broad inequilateral wing, usually containing a single naked seed.

Type species, *Cameraria latifolia* L.

Leaves suborbicular to oblong-elliptic. 1. *C. latifolia.*
Leaves linear-lanceolate to subfiliform. 2. *C. angustifolia.*

1. **Cameraria latifolia** L. Sp. Pl. 210. 1753.

Cameraria retusa Griseb. Fl. Brit. W. Ind. 410. 1861.
Cameraria microphylla Britton, Bull. Torrey Club **39**: 6. 1912.

Cameraria oblongifolia Britton, Bull. Torrey Club 39: 6. 1912.
Cameraria ovalis Urban, Repert. Sp. Nov. 21: 219. 1925.
Cameraria belizensis Standley, Trop. Woods 7: 8. 1926.

Shrub or small tree, frequently only 1 m. tall, wholly glabrous; leaves firmly membranaceous to subcoriaceous, very broadly ovate or suborbicular to oblong-elliptic, or occasionally suborbicular, 1.5–4 cm. long, 0.7–2.7 cm. broad, abruptly and obtusely subcaudate-acuminate to broadly obtuse or rounded, or sometimes minutely emarginate, broadly obtuse to rounded at the base, usually very lustrous above, the veins crowded, subhorizontal, the petioles 2–6 mm. long; inflorescence corymbose, 2–8-flowered, about equaling the subtending leaves; pedicels 5–8 mm. long; calyx-lobes ovate, acute to obtuse, 1–1.5 mm. long, imbricate; corolla salverform, white, the tube 5–8 mm. long, about 1 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, the lobes broadly obovate, 6–15 mm. long, widely spreading; samaras 4–4.5 cm. long, 1.5–2 cm. broad.

TYPE LOCALITY: Tropical America.
DISTRIBUTION: Cuba; Jamaica (?); British Honduras.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 182, f. 86;* E. & P. Nat. Pfl. 4^2: 140, *f. 54 A*.

2. **Cameraria angustifolia** L. Sp. Pl. 210. 1753.

Cameraria linearifolia Urban, Ark. Bot. **20A**^{6}: 39. 1926.

Small tree or shrub, wholly glabrous; leaves membranaceous, linear-lanceolate to subfiliform, 3.5–8 cm. long, 1–2.5 mm. broad, gradually and obtusely acuminate, narrowly obtuse to rounded at the base, the petioles 1–2 mm. long; inflorescence corymbose, 2–4-flowered, much shorter than the subtending leaves; pedicels 5–10 mm. long; corolla salverform, white, the tube 7–8 mm. long, about 1 mm. in diameter at the base, somewhat inflated above the insertion of the stamens, the lobes broadly and obliquely obovate, 12–15 mm. long, widely spreading; mature samaras unknown.

TYPE LOCALITY: Tropical America.
DISTRIBUTION: Haïti.
ILLUSTRATION: Plumier, Pl. Am. *pl. 72, f. 2*.

7. **TONDUZIA** Pittier, Contr. U. S. Nat. Herb. **12**: 103. 1908.

Small trees or shrubs. Leaves in whorls of 3 or 4, or rarely opposite, not glandular. Inflorescence lateral or subterminal, thyrsiform, bearing numerous, rather small, white or cream-colored flowers. Calyx 5-cleft nearly to the receptacle, the lobes essentially equal, slightly imbricate, without squamellae. Corolla salverform, not appendaged within, the limb equally 5-parted, sinistrorsely convolute. Anthers not connivent, without an enlarged connective, wholly included. Ovary apocarpous, containing several ovules in 2 series, surrounded by a shallow annular nectary at the base, or the nectary absent. Fruit follicular, apocarpous, dehiscent, terete; seeds numerous, compressed, dry, ciliate at the margin.

Type species, *Tonduzia parvifolia* Pittier.

Corolla 15–18 mm. long; leaves 10–18 cm. long. 1. *T. macrantha.*
Corolla 8–10 mm. long; leaves 4–17 cm. long.
  Leaves narrowly oblong-elliptic, 6–7 times as long as broad, subcoriaceous; stamens inserted at about the lower third of the corolla-tube. 2. *T. longifolia.*
  Leaves elliptic, 2–4 times as long as broad, membranaceous; stamens inserted near or slightly below the middle of the corolla-tube. 3. *T. Pittieri.*

1. **Tonduzia macrantha** Woodson, Ann. Mo. Bot. Gard. **24**: 12. 1937.

Small tree, about 8 m. tall, wholly glabrous; leaves ternate, or the upper opposite, firmly membranaceous, oblong-elliptic, 10–18 cm. long, 2–4 cm. broad, gradually acute-acuminate, decurrently cuneate at the base, somewhat lustrous above, the petioles 10–20 mm. long; inflorescence terminal or subterminal, irregularly cymose, much shorter than the subtending leaves, bearing several to numerous, white or cream-colored flowers of medium size; pedicels 5–7 mm. long; calyx-lobes ovate-deltoid, rounded, 1–1.25 mm. long; corolla salverform, the tube

7 mm. long, about 1.25 mm. in diameter at the base, the lobes oblong-dolabriform, rounded, 9–10 mm. long, spreading; follicles rather stout, 10–12 cm. long.

TYPE LOCALITY: Volcán Zunil, Quezaltenango, Guatemala; alt. 1650 meters.
DISTRIBUTION: Known only from the type locality.

2. **Tonduzia longifolia** (A. DC.) Woodson.

Rauwolfia longifolia A. DC. in DC. Prodr. **8**: 338. 1844.
Rauwolfia stenophylla Donn. Smith, Bot. Gaz. **44**: 115. 1907.
Tonduzia parvifolia Pittier, Contr. U. S. Nat. Herb. **12**: 103. 1908.
Tonduzia stenophylla Pittier, Contr. U. S. Nat. Herb. **12**: 104. 1908.

Small tree, 3–6 m. tall, essentially glabrous throughout; leaves predominantly ternate, occasionally quaternate, or the upper rarely opposite, subcoriaceous, narrowly oblong-elliptic, 8–17 cm. long, 1.5–2.5 cm. broad, gradually and obtusely acuminate, narrowly and acutely cuneate and more or less decurrent at the base, the petioles 5–15 mm. long; inflorescence congested, much shorter than the subtending leaves, bearing numerous, rather small, white flowers; pedicels 3–6 mm. long; calyx-lobes ovate, acute to obtusish, 1–1.5 mm. long; corolla salverform, the tube 3–5 mm. long, about 1 mm. in diameter at the base, the lobes obliquely oblong-obovate, obtuse, 4–5 mm. long, spreading; stamens inserted at about the lower third of the corolla-tube; follicles rather stout, 7–12 cm. long.

TYPE LOCALITY: Near San Miguel Sola [Oaxaca].
DISTRIBUTION: Vera Cruz and Oaxaca; Salvador; Costa Rica.
ILLUSTRATION: Contr. U. S. Nat. Herb. **12**: *pl. 9*.

3. **Tonduzia Pittieri** Donn. Smith, Bot. Gaz. **49**: 456. 1910.

Shrub or small tree, 3–4 m. tall, essentially glabrous throughout; leaves ternate or quaternate, or rarely opposite above, firmly membranaceous, rather narrowly elliptic, 4–11 cm. long, 1–3 cm. broad, acutely acuminate to obtusish, acutely cuneate at the base, the petioles 4–5 mm. long; inflorescence congested, corymbose, much shorter than the subtending leaves, bearing numerous, rather small, white flowers; pedicels 3–4 mm. long; calyx-lobes ovate-triangular, acute, 0.5–0.75 mm. long; corolla salverform, the tube 4–4.5 mm. long, about 0.75 mm. in diameter at the base, the lobes rather broadly oblong-dolabriform, rounded, 4–5 mm. long, spreading; stamens inserted near or slightly below the middle of the corolla-tube; follicles unknown.

TYPE LOCALITY: Fiscal, Guatemala; alt. 1110 meters.
DISTRIBUTION: Guatemala.

8. **STREMPELIOPSIS** Benth.; Benth. & Hook. Gen. Pl. **2**: 702. 1876.

Small trees or shrubs. Leaves opposite, not glandular. Inflorescence compound-cymose, terminal or pseudoterminal, bearing several to many, small, greenish-white flowers. Calyx 5-parted, the lobes essentially equal, slightly imbricate, without squamellae. Corolla salverform or tubular-salverform, the limb equally 5-parted, sinistrorsely contorted. Anthers not connivent, without an enlarged connective, wholly included. Ovary apocarpous, without a nectary, containing several ovules in 2 series. Follicles separate, terete or only slightly compressed; seeds dry, compressed, with a narrow wing at each end.

Type species, *Rauwolfia strempelioides* Griseb.

Leaves 2–6 cm. long; inflorescence relatively few-flowered, shorter than the subtending leaves; Cuba. 1. *S. strempelioides*.
Leaves 6–13 cm. long; inflorescence relatively many-flowered, equaling or surpassing the subtending leaves; Jamaica. 2. *S. arborea*.

1. **Strempeliopsis strempelioides** (Griseb.) K. Schumann, in E. & P. Nat. Pfl. **4**^{2}: 144. 1895.

Rauwolfia strempelioides Griseb. Cat. Pl. Cub. 170. 1866.
Strempeliopsis Benthami Baillon, Hist. Pl. **10**: 182. 1889.

Strempeliopsis cubensis Maza, Anal. Soc. Esp. Hist. Nat. **23**: 273. 1895.

Shrub, occasionally only 1 meter tall, wholly glabrous throughout; leaves coriaceous or subcoriaceous, obovate to obovate-oblong, 2–6 cm. long, 1–2.5 cm. broad, rounded at the apex, acutely to obtusely cuneate at the base, the petioles 6–8 mm. long; inflorescence several-flowered, much shorter than the subtending leaves; pedicels 1–1.5 mm. long; calyx-lobes ovate-triangular, acute, 0.8–1 mm. long; corolla salverform, the tube 3–4.5 mm. long, about 1 mm. in diameter at the base, the lobes oblong-dolabriform, 2.5–4 mm. long, spreading; follicles 5–7 cm. long.

TYPE LOCALITY: Western Cuba.
DISTRIBUTION: Cuba.

2. **Strempeliopsis arborea** Urban, Symb. Ant. 5: 461. 1908.

Small to medium-sized tree, occasionally attaining a height of 10 m., wholly glabrous throughout; leaves coriaceous or subcoriaceous, obovate to obovate-oblong, 6–13 cm. long, 2–6 cm. broad, obtusely acuminate to broadly obtuse or rounded, the petioles 5–9 mm. long; inflorescence corymbiform, many-flowered, equaling or somewhat surpassing the subtending leaves; pedicels 3–4.5 mm. long; calyx-lobes ovate-triangular, acute, 1–1.5 mm. long; corolla salverform, white, the tube 4–6 mm. long, about 1 mm. in diameter at the base, the lobes oblong-dolabriform, 3.5–5 mm. long, spreading; follicles rather stout, 5–8 cm. long.

TYPE LOCALITY: Tyre, near Troy, [Trelawney,] Jamaica.
DISTRIBUTION: Jamaica.

9. **CUFODONTIA** Woodson, Archivio Bot. 10: 38. 1934.

Shrubs and small to medium-sized trees. Leaves alternate, not glandular. Inflorescence cymose, lateral or terminal, several-flowered. Calyx 4-(? 5-)parted, strongly imbricate, the lobes very unequal, the outer two (or three ?) connate and completely enclosing the smaller pair within, without squamellae. Corolla salverform, small, the limb equally 5-parted, sinistrorsely contorted. Anthers not connivent, without an enlarged connective. Ovary apocarpous, containing numerous ovules, without a nectary. Fruit unknown, probably follicular.

Type species, *Cufodontia Stegomeris* Woodson.

Leaves glabrous beneath; corolla 10–15 mm. long, the tube puberulent-papillate without.
  Tree; leaves subcoriaceous; calyx-tube about 6 mm. long. 1. *C. arborea.*
  Shrub; leaves thinly membranaceous; calyx-tube 3–3.5 mm. long. 2. *C. Stegomeris.*
Leaves lepidote-papillate beneath; corolla 6–8 mm. long, the tube lepidote-papillate without. 3. *C. Lundelliana.*

1. **Cufodontia arborea** Woodson, Ann. Mo. Bot. Gard. **21**: 617. 1934.

Medium-sized tree; leaves subcoriaceous, broadly oblong-elliptic, 8–12.5 cm. long, 2.5–4.5 cm. broad, obtusish or broadly acute, broadly obtuse at the base, wholly glabrous, somewhat lustrous above, the petioles 10–12 mm. long; inflorescence bearing 7–9 rather small, white or yellowish flowers; pedicels 3.5–4 mm. long; calyx-tube cylindric or very slightly dilated above, shortly and obtusely 2-lobed, about 6 mm. long; corolla salverform, the tube puberulent-papillate, about equaling the calyx-tube, about 1.5 mm. in diameter at the base, the lobes oblong-dolabriform, 8–9 mm. long, spreading.

TYPE LOCALITY: Near Cafetal Concordia, Oaxaca; alt. 400–650 meters.
DISTRIBUTION: Known only from the type locality.

2. **Cufodontia Stegomeris** Woodson, Archivio Bot. **10**: 39. 1934.

Shrub; leaves membranaceous, obovate-lanceolate to elliptic, 5–8 cm. long, 2–3.5 cm. broad, acutely acuminate, acutely cuneate at the base, wholly glabrous, the petioles 2–5 mm. long; inflorescence much shorter than the subtending leaves, bearing numerous, rather small, white or pale-yellowish flowers; pedicels 3–4 mm. long; calyx-tube cylindric-urceolate, shortly and obtusely 2-lobed, 3–3.5 mm. long; corolla salverform, the tube puberulent-papillate, 5–6

mm. long, about 1 mm. in diameter at the base, the lobes oblong-dolabriform, 4.5–5 mm. long, slightly spreading.

TYPE LOCALITY: Finca Santa Maria, near Puerto Jiminez, Costa Rica.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Archivio Bot. **10**: *pl. 2*.

3. **Cufodontia Lundelliana** Woodson, Archivio Bot. **10**: 40. 1934.

Tree, attaining a height of 25 m.; leaves firmly membranaceous, elliptic to ovate-elliptic, 5–10 cm. long, 1.5–4 cm. broad, acutely acuminate to obtusish, broadly acute to obtusely cuneate at the base, lepidote-puberulent or scurfy-puberulent on both sides, or the upper surface glabrate, the petioles 10–15 mm. long; inflorescence much shorter than the subtending leaves, bearing numerous white or pale-yellowish flowers; pedicels 1 mm. long or nearly obsolete; calyx-tube cylindric-urceolate, obtusely 2-lobed, 3–3.5 mm. long; corolla salverform, the tube lepidote-papillate, 3–4 mm. long, about 1.5 mm. in diameter at the base, the lobes oblong-dolabriform, 3.5–4.5 mm. long, spreading.

TYPE LOCALITY: La Libertad, Peten, Guatemala.
DISTRIBUTION: Guatemala and British Honduras.

10. **LOCHNERA** Reichenb. Consp. 134, hyponym. 1828; Endl. Gen. 583. Au 1838. Not Lochneria Scop. 1777.

Catharanthus G. Don, Gen. Hist. **4**: 95. 1838.
Ammocallis Small, Fl. SE. U. S. 935. 1903.

Subsucculent annual herbs. Leaves opposite, not glandular. Inflorescence lateral, consisting of a sessile cyme of 1–4 handsome, pink or white flowers. Calyx 5-parted, the lobes essentially equal, subfoliaceous, without squamellae. Corolla salverform, the limb equally 5-parted. Anthers not connivent, without an enlarged connective, barely included. Ovary apocarpous, accompanied by alternate oblong-ovoid nectaries of nearly equal size, containing numerous ovules. Follicles terete, separate; seeds numerous, dry, naked, subcompressed.

Type species, *Vinca rosea* L.

1. **Lochnera rosea** (L.) Reichenb.; Spach, Hist. Veg. **8**: 526. 1839.

Vinca rosea L. Syst. Nat. ed. 10. 944. 1759.
Vinca speciosa Salisb. Prodr. 147. 1796.
Catharanthus roseus G. Don, Gen. Hist. **4**: 95. 1838.
Ammocallis rosea Small, Fl. SE. U. S. 935. 1903.

Subsucculent annual herb; leaves opposite, broadly oblong-elliptic to ovate-elliptic, 2–7 cm. long, 1.5–3 cm. broad, broadly obtuse or rounded, or occasionally submucronulate-acuminate, acutely to obtusely cuneate at the base, usually minutely puberulent or puberulent-papillate on both surfaces, or occasionally glabrate, the petioles 4–10 mm. long; flowers borne in sessile cymose clusters of one to three in alternate leaf-axils; pedicels 1.5–3 mm. long, minutely puberulent; calyx-lobes narrowly lanceolate, acuminate, 4–7 mm. long, minutely pilosulous; corolla salverform, pink, the tube 2–3 cm. long, about 1.5 mm. in diameter at the base, somewhat inflated at the insertion of the stamens immediately below the constricted orifice, the lobes broadly obovate-dolabriform, 15–25 mm. long, widely spreading; follicles rather short and stout, terete, 15–35 mm. long.

TYPE LOCALITY: Madagascar.
DISTRIBUTION: Widely cultivated and escaped throughout the tropical and subtropical lands of both hemispheres.
ILLUSTRATIONS: Bot. Mag. *pl. 248;* Schnizl. Ic. *pl. 132, f. 2–16;* Stand. Cycl. Hort. *f. 3934*.

Lochnera rosea f. **alba** (Sweet) Woodson. *Vinca rosea* var. *alba* Sweet, Hort. Brit. 274. 1826. *Catharanthus roseus* var. *albus* G. Don, Gen. Hist. **4**: 95. 1838. Corolla uniformly white. TYPE LOCALITY: [Gardens.] DISTRIBUTION: Widely distributed with the typical form. ILLUSTRATIONS: Reveil, Regne Vég. Bot. Gen. **2**: *pl. 44, f. 18;* Blanco, Fl. Filip. *pl. 42*.

Lochnera rosea f. **ocellata** (Sweet) Woodson. *Vinca rosea* var. *ocellata* Sweet, Hort. Brit. 274. 1826. *Catharanthus roseus* var. *ocellatus* G. Don, Gen. Hist. **4**: 95. 1838. Corolla white, with a pink or red eye. TYPE LOCALITY: [Gardens.] DISTRIBUTION: Widely distributed with the typical form.

11. VINCA L. Sp. Pl. 209. 1753.

Pervinca Tourn.; Adans. Fam. Pl. 2: 172. 1763.

Erect or trailing perennial herbs. Leaves opposite, not glandular. Flowers solitary in the axils of alternate leaves. Calyx 5-parted, the lobes essentially equal, without squamellae. Corolla infundibuliform, equally 5-parted, not appendaged within. Anthers not connivent, the connective produced into a relatively large apical appendage, not appendaged at the base. Ovary apocarpous, accompanied by two alternate nectaries of nearly equal size, containing numerous ovules. Follicles terete, relatively slender; seeds numerous, naked, subcompressed.

Type species, *Vinca minor* L.

1. Vinca minor L. Sp. Pl. 209. 1753.

Vinca humilis Salisb. Prodr. 146. 1796.
Vinca ellipticifolia Stokes, Bot. Mat. Med. 1: 495. 1812.
Vinca intermedia Tausch, Flora 19: 386. 1836.

Creeping or trailing, evergreen, perennial herb; leaves firmly membranaceous to subcoriaceous, elliptic, 1.5–6 cm. long, 0.8–2.5 cm. broad, obtuse to broadly acute, somewhat obtusely cuneate to broadly acute at the base, glabrous, somewhat lustrous above, the petioles 1–2 mm. long, usually minutely glandular-puberulent; flowers solitary in alternate leaf-axils, usually on the suberect branches of early spring; pedicels 15–35 mm. long, glabrous; calyx-lobes ovate-lanceolate, acute, 1.5–3 mm. long, glabrous; corolla infundibuliform, bright-blue, rarely white, the tube proper 3–6 mm. long, about 1.5 mm. in diameter at the base, the throat conic to conic-campanulate, 5–7 mm. long, 2–3.5 mm. in diameter; follicles slender, 2–7 cm. long, very rarely produced.

TYPE LOCALITY: Europe.
DISTRIBUTION: Probably indigenous to south-central Europe; widely cultivated and naturalized throughout the temperate northern hemisphere.
ILLUSTRATIONS: Lam. Tab. Encyc. *pl. 172, f. 2;* Lindl. Veg. Kingd. *f. 406;* Schnizl. Ic. *pl. 132, f. 32–37;* Baillon, Hist. Pl. 10: *f. 117;* Britt. & Brown, Ill. Fl. *f. 2894;* ed. 2. *f. 3375.*

NOTE: *Vinca major* L. is occasionally found in cultivation or as an escape. It may be distinguished from *V. minor* by its larger size in all respects, its erect habit, and its deciduous leaves, which are membranaceous and puberulent at the base.

12. HAPLOPHYTON A. DC. in DC. Prodr. 8: 412. 1844.

Undershrubs. Leaves predominantly alternate, occasionally opposite, not glandular. Flowers rather showy, solitary, or rarely paired in the upper leaf-axils. Calyx 5-parted, the lobes essentially equal, not imbricate or scarcely so, without squamellae. Corolla salverform, not appendaged within, the limb equally 5-parted, sinistrorsely contorted. Anthers not connivent, without an enlarged connective, wholly included. Ovary apocarpous, without a nectary, containing numerous ovules. Follicles terete, elongate; seeds numerous, comose at the apex.

Type species, *Haplophyton cimicidum* A. DC.

1. Haplophyton cimicidum A. DC. in DC. Prodr. 8: 412. 1844.

Echites cinerea A. Rich. in Sagra, Hist. Cuba 11: 93. 1850.
Echites cimicida Sessé & Moc. Pl. Nov. Hisp. 29. 1888.
Haplophyton cinereum Woodson, Ann. Mo. Bot. Gard. 23: 231. 1936.

Suffrutescent undershrub, 3–5 dm. tall; leaves membranaceous, alternate or occasionally opposite, ovate-elliptic to narrowly oblong-elliptic, 1–3.5 cm. long, 4–8 mm. broad, acutely acuminate to obtusish and submucronulate, broadly obtuse at the base, minutely strigillose above, minutely hispidulous beneath, the petioles 0.75–1.5 mm. long; flowers conspicuous, cream-colored or somewhat flushed with rose, borne singly or in pairs in the upper leaf-axils; calyx-lobes linear-lanceolate, acuminate, 5–8 mm. long, rather sparsely pilosulous; corolla salverform, minutely puberulent without, the tube 6–9 mm. long, about 1 mm. in diameter at the base, the lobes broadly obovate-dolabriform, 10–18 mm. long, spreading; anthers inserted

near the middle of the corolla-tube or somewhat lower; follicles slender, 6–8 cm. long, minutely puberulent-pilosulous to glabrate.

TYPE LOCALITY: Near Tehuantepec [Oaxaca].
DISTRIBUTION: Southern New Mexico and Arizona, and southward to Sonora, Chihuahua, and Durango; Oaxaca; reported from Cuba by Richard, but probably erroneously.

13. AMSONIA Walt. Fl. Car. 98. 1788.

Ansonia Raf. New Fl. 4: 58. 1838.

Caulescent herbaceous perennials. Leaves alternate or subverticillate, not glandular. Inflorescence thyrsiform, terminal or occasionally lateral, bearing several to many flowers. Calyx 5-parted, the lobes essentially equal, scarcely imbricate, without squamellae. Corolla salverform, the limb regularly 5-parted, the lobes sinistrorsely contorted. Anthers not connivent, without an enlarged connective, wholly included. Ovary apocarpous, without a nectary, containing numerous ovules. Follicles terete, continuous or more or less moniliform; seeds numerous, naked, rather corky.

Type species [by inference], *Tabernaemontana Amsonia* L.

Corolla-tube not constricted at the orifice; stigma depressed-capitate or truncate; follicles continuous or only slightly articulate; southeastern United States.
- Corolla glabrous externally.
  - Leaves elliptic, distinctly petiolate.
    - Leaves 2–5 cm. long; Florida. — 1. *A. rigida.*
    - Leaves 5–7 cm. long; Louisiana. — 2. *A. glaberrima.*
  - Leaves oblong-lanceolate to linear, or the lower infrequently elliptic, sessile or subsessile, at least the upper. — 3. *A. ciliata.*
- Corolla pubescent externally.
  - Follicles glabrous; mature leaves essentially glabrous, or slightly puberulent beneath.
    - Leaves thinly membranaceous, opaque above; calyx glabrous; follicles essentially continuous, not conspicuously papyraceous. — 4. *A. Tabernaemontana.*
    - Leaves subcoriaceous to firmly membranaceous, lustrous above; calyx more or less pilosulous; follicles somewhat articulate, conspicuously papyraceous. — 5. *A. illustris.*
  - Follicles more or less pubescent; leaves densely and persistently pubescent, at least beneath. — 6. *A. ludoviciana.*

Corolla-tube more or less constricted at the orifice; stigma apiculate by two distinct lobes; southwestern United States.
- Follicles continuous, not moniliform.
  - Corolla-tube 6–18 mm. long, only slightly constricted at the orifice.
    - Corolla-lobes 3–6 mm. long.
      - Corolla-tube 6–8 mm. long, scarcely surpassing the lobes; leaves usually broadly ovate, less frequently narrowly ovate-elliptic; plants glabrous. — 7. *A. Jonesii.*
      - Corolla-tube 10–18 mm. long, greatly surpassing the lobes; leaves linear-lanceolate, or rarely narrowly ovate-elliptic; plants glabrous or pubescent.
        - Corolla-lobes 3–5 mm. long, about one fourth to one third as long as the tube. — 8. *A. Palmeri.*
        - Corolla-lobes 5–6 mm. long, about half as long as the tube. — 9. *A. hirtella.*
    - Corolla-lobes 10–12 mm. long, about half as long as the tube. — 10. *A. Peeblesii.*
  - Corolla-tube 18–40 mm. long, conspicuously constricted at the orifice.
    - Corolla-tube about 20 mm. long, only slightly longer than the lobes. — 11. *A. grandiflora.*
    - Corolla-tube 30–40 mm. long, much longer than the lobes.
      - Plants glabrous; corolla-lobes 11–13 mm. long. — 12. *A. longiflora.*
      - Plants pubescent; corolla-lobes 5–8 mm. long. — 13. *A. salpignantha.*

Follicles conspicuously articulate-moniliform.
- Plants glabrous or essentially so.
  - Leaves ovate, or the upper oblong-lanceolate to ovate-lanceolate. — 14. *A. brevifolia.*
  - Leaves oblong-lanceolate, or the upper linear-lanceolate. — 15. *A. Eastwoodiana.*
- Plants densely tomentose.
  - Upper leaves ovate to ovate-lanceolate. — 16. *A. tomentosa.*
  - Upper leaves narrowly oblong-lanceolate to subfiliform. — 17. *A. arenaria.*

1. **Amsonia rigida** Shuttl.; Small, Fl. SE. U. S. 935. 1903.

Stems 8–15 dm. tall, glabrous; leaves alternate, membranaceous, elliptic, 2–5 cm. long, 0.6–1.5 cm. wide, acute to acutely acuminate, broadly obtuse at the base, wholly glabrous, opaque above, somewhat glaucous beneath, the petioles 2–6 mm. long; inflorescence rather diffuse, surpassing the foliage, bearing numerous, rather small, azure flowers; pedicels 4–6 mm. long, glabrous; corolla glabrous externally, the tube 6–8 mm. long, gradually dilated above the insertion of the stamens, about 1 mm. in diameter at the base, not constricted at the orifice, the lobes 7–10 mm. long, spreading, glabrous; follicles slender, continuous, 7–11 cm. long, glabrous.

TYPE LOCALITY: ["In uliginosis, prope St. Marks,"] Florida.
DISTRIBUTION: Southern Georgia and northern Florida.

2. **Amsonia glaberrima** Woodson, Bull. Torrey Club **63**: 36. 1936.

Stems 6–7 dm. tall, wholly glabrous; leaves alternate, firmly membranaceous, elliptic to broadly oblong-elliptic, 5–7 cm. long, 1.5–2.4 cm. broad, acutely acuminate, broadly acute to obtuse at the base, wholly glabrous, opaque on both sides, the petioles 2–4 mm. long; inflorescence rather diffuse, scarcely surpassing the foliage, bearing several to numerous, medium-sized, azure flowers; pedicels 3–4 mm. long, glabrous; calyx-lobes ovate-triangular, acute, about 1.5 mm. long, glabrous; corolla wholly glabrous externally, the tube 6.5–7 mm. long, about 1 mm. in diameter at the base, somewhat dilated above the insertion of the stamens, not constricted at the orifice, the lobes 6–7 mm. long, glabrous, somewhat spreading; follicles relatively slender, continuous, 8–10 cm. long, glabrous.

TYPE LOCALITY: Welsh, Jeff Davis Parish, Louisiana.
DISTRIBUTION: Central Louisiana.

3. **Amsonia ciliata** Walt. Fl. Car. 98. 1788.

Tabernaemontana angustifolia Ait. Hort. Kew. **1**: 300. 1789.
Amsonia angustifolia Michx. Fl. Bor. Am. **1**: 121. 1803.
Ansonia ciliata Raf. New Fl. **4**: 58. 1838.
Ansonia angustifolia Raf. New Fl. **4**: 58. 1838.

Stems 7–15 dm. tall, more or less densely pilose to glabrate or glabrous; leaves alternate, sessile or subsessile, at least above, oblong-lanceolate to linear-lanceolate, 4–8 cm. long, 0.2–1 cm. wide, attenuate at each end, rather distinctly heterophyllous, the lower leaves much broader than the upper; inflorescence barely surpassing the foliage, bearing several to numerous, medium-sized, azure flowers; pedicels 3–5 mm. long, puberulent to glabrate; calyx-lobes ovate-lanceolate to linear-lanceolate, long-acuminate, 1–2 mm. long, glabrous, or with a few weak hairs; corolla glabrous externally, the tube 6–8 mm. long, about 1 mm. in diameter at the base, somewhat dilated above the insertion of the stamens, not constricted at the orifice, the lobes 7–8 mm. long, glabrous, somewhat spreading; follicles relatively slender, continuous, 9–11 cm. long, glabrous.

TYPE LOCALITY: South Carolina.
DISTRIBUTION: North Carolina to Florida and Alabama; southeastern Texas.
ILLUSTRATIONS: Vent. Choix *pl. 29;* Lounsberry, S. Wild Fl. *pl. 145;* Lam. Tab. Encyc. *pl. 932.*

Amsonia ciliata var. **texana** (A. Gray) Coult. Contr. U. S. Nat. Herb. **2**: 262. 1892. *Amsonia angustifolia* var. *texana* A. Gray, Syn. Fl. N. Am. **2**[1]: 81. 1878. *Amsonia texana* A. Heller, Muhlenbergia **1**: 2. 1900. Leaves alternate, oblong-lanceolate to essentially elliptic above, narrowly elliptic-lanceolate to linear-lanceolate below, 2–6 cm. long, 0.3–1.7 cm. broad. TYPE LOCALITY: Texas. DISTRIBUTION: Eastern Oklahoma and eastern Texas.

Amsonia ciliata var. **filifolia** Wood, Class-book ed. 1861. 589. 1861. *Ansonia tenuifolia* Raf. New Fl. **4**: 58. 1838. *Amsonia tenuifolia* Harper, Ann. N. Y. Acad. **17**: 175. 1906. *Amsonia ciliata* var. *tenuifolia* Woodson, Ann. Mo. Bot. Gard. **15**: 400. 1928. Leaves predominantly verticillate, linear-lanceolate to filiform, 2–5 cm. long, 0.5–4 mm. broad. TYPE LOCALITY: South Carolina. DISTRIBUTION: North Carolina to Florida and Alabama; southeastern Texas; also locally in the Ozark highlands of southern Missouri and in the Ouachita highlands of central Arkansas.

4. **Amsonia Tabernaemontana** Walt. Fl. Car. 98. 1788.

Tabernaemontana Amsonia L. Sp. Pl. ed. 2. 308. 1762.
Tabernaemontana humilis Salisb. Prodr. 148. 1796.
Amsonia latifolia Michx. Fl. Bor. Am. **1**: 121. 1803.
Amsonia tristis Smith, in Rees, Cycl. **35**: Amsonia no. 2. 1817.
Ansonia latifolia Raf. New Fl. **4**: 58. 1838.
Amsonia Amsonia Britton, Mem. Torrey Club **5**: 262. 1894.

Stems 3–10 dm. tall; leaves alternate, rather thinly membranaceous, ovate to broadly oblong-elliptic, 6–14 cm. long, 2.2–5 cm. broad, acutely acuminate at the apex, obtuse to broadly acute at the base, wholly glabrous to finely puberulent beneath, opaque on both sides, the petioles 3–6 mm. long; inflorescence barely surpassing the foliage, bearing several to numerous azure flowers; pedicels 3–6 mm. long; calyx-lobes ovate to ovate-lanceolate, 1–2 mm. long, glabrous; corolla more or less pilose externally, the tube 6–8 mm. long, about 1 mm. in diameter at the base, somewhat dilated above the insertion of the stamens, not constricted at the orifice, the lobes 4–7 mm. long, spreading; follicles relatively slender, continuous, 8–12 cm. long, glabrous.

TYPE LOCALITY: Virginia.
DISTRIBUTION: Pennsylvania to South Carolina, and westward to eastern Kansas and Oklahoma; introduced locally in New Jersey and Massachusetts.
ILLUSTRATIONS: Bot. Reg. *pl. 151;* Iles, Wild Fl. Am. *pl. 113;* Britt. & Brown, Ill. Fl. *f. 2893;* ed. 2. *f. 3374.*

Amsonia Tabernaemontana var. **salicifolia** (Pursh) Woodson, Ann. Mo. Bot. Gard. **15**: 406. 1928. *Amsonia salicifolia* Pursh. Fl. Am. Sept. 184. 1814. *Ansonia salicifolia* Raf. New Fl. **4**: 58. 1838. *Amsonia Tabernaemontana* var. *Gattingeri* Woodson, Ann. Mo. Bot. Gard. **15**: 408. 1928. Leaves lanceolate to narrowly oblong-elliptic, 6–15 cm. long, 1–2.5 cm. broad, glabrous. TYPE LOCALITY: Carolina. DISTRIBUTION: Virginia to South Carolina and Georgia, and westward to Missouri, Oklahoma, and eastern Texas.

5. **Amsonia illustris** Woodson, Ann. Mo. Bot. Gard. **16**: 407. 1929.

Stems 7–11 dm. tall, rather stout; leaves alternate, subcoriaceous to firmly membranaceous, rather narrowly oblong-lanceolate to elliptic-lanceolate, 5–7 cm. long, 1–1.5 cm. broad, acute to acuminate, obtuse or obtusish at the base, glabrous, the upper surface lustrous, the petioles 1–4 mm. long; inflorescence barely surpassing the foliage, bearing numerous pale-blue flowers; pedicels 2–8 mm. long; calyx-lobes oblong-lanceolate, acuminate, more or less pilosulous; corolla more or less pilose externally, the tube 6–8 mm. long, about 1 mm. in diameter at the base, slightly dilated at the insertion of the stamens, not constricted at the orifice, the lobes 5–7 mm. long, spreading; follicles somewhat articulate to essentially continuous, slender, papyraceous, 8–14 cm. long, glabrous.

TYPE LOCALITY: Near Webb City, Missouri.
DISTRIBUTION: Southern Missouri and eastern Kansas, and southward to northeastern Texas.

6. **Amsonia ludoviciana** Vail; Small, Fl. SE. U. S. 935. 1903.

Stems 5–11 dm. tall; leaves alternate, membranaceous, rather broadly elliptic, 5–8 cm. long, 2–4 cm. broad, acuminate, glabrous or essentially so above, densely and persistently tomentulose beneath, the petioles 4–8 mm. long; inflorescence barely surpassing the foliage, bearing several to numerous pale-blue flowers; pedicels 2–4 mm. long; calyx-lobes ovate-lanceolate, 2–3 mm. long, pilosulous; corolla more or less pilose externally, the tube 5–9 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated above the insertion of the stamens, not constricted at the orifice, the lobes 4–8 mm. long, spreading; follicles relatively stout, continuous, 6–10 cm. long, more or less pubescent, especially above.

TYPE LOCALITY: Louisiana.
DISTRIBUTION: Southeastern Louisiana.

7. **Amsonia Jonesii** Woodson, Ann. Mo. Bot. Gard. **15**: 414. 1928..

Amsonia latifolia M. E. Jones, Contr. W. Bot. **12**: 50. 1908. Not *A. latifolia* Michx. 1803.

Stems 2–4 dm. tall; leaves alternate, subsucculent, broadly ovate to narrowly ovate-elliptic, 3–5 cm. long, 1–3 cm. broad, acute to obtusish, obtuse at the base, wholly glabrous, the petioles 1.5–4 mm. long; inflorescence rather congested, barely surpassing the foliage, bearing numerous, rather small, pale-lead-blue flowers; pedicels 3–4 mm. long; calyx-lobes ovate-triangular, 1–1.5 mm. long, glabrous; corolla glabrous externally or very inconspicuously pilosulous at the base of the lobes, the tube 6–8 mm. long, somewhat less than 1 mm. in diameter at the base, slightly inflated at the insertion of the stamens, slightly constricted at the orifice, the lobes 3–6 mm. long, spreading; follicles relatively stout, continuous, 5–8 cm. long, glabrous.

TYPE LOCALITY: Monroe, Sevier County, Utah; alt. 1500 meters.
DISTRIBUTION: Southwestern Colorado, southern Utah, and Arizona.

8. **Amsonia Palmeri** A. Gray, Proc. Am. Acad. **12**: 64. 1876.

Amsonia Fremontii Rydb. Bull. Torrey Club **40**: 465, nomen nudum. 1913.
Amsonia Kearneyana Woodson, Ann. Mo. Bot. Gard. **15**: 415. 1928.

Stems 3–8 dm. tall, glabrous to pubescent; leaves alternate, firmly membranaceous, oblong-lanceolate to linear-lanceolate, 2.5–7 cm. long, 0.4–1.5 cm. broad, acute to acuminate, obtuse or obtusish at the base, glabrous to somewhat pubescent, the petioles 1–3 mm. long; inflorescence very congested, usually well surpassing the foliage, bearing several to relatively few, small, pale-lead-blue flowers; pedicels 1 mm. long to nearly obsolete; calyx-lobes lance-triangular, acuminate, 3–5 mm. long, densely pilosulous to nearly glabrate; corolla glabrous externally, the tube 10–18 mm. long, about 1 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, slightly constricted at the orifice, the lobes 3–5 mm. long, slightly spreading to essentially erect; follicles relatively stout, nearly continuous to slightly articulate, 3–6 cm. long, glabrous or nearly so.

TYPE LOCALITY: Arizona.
DISTRIBUTION: New Mexico and Arizona.

9. **Amsonia hirtella** Standley, Proc. Biol. Soc. Wash. **26**: 118. 1913.

Amsonia pogonosepala Woodson, Ann. Mo. Bot. Gard. **15**: 412. 1928.
Amsonia Standleyi Woodson, Ann. Mo. Bot. Gard. **15**: 413. 1928.
Amsonia arizonica A. Nelson, Am. Jour. Bot. **18**: 432. 1931.

Stems 3–8 dm. tall, glabrous to rather densely pubescent; leaves alternate to subverticillate, firmly membranaceous, narrowly oblong-lanceolate to linear-lanceolate, 3–7 cm. long, 0.2–1.4 cm. broad, acutely acuminate, acute to obtusish at the base, wholly glabrous to densely tomentulose, the petioles 1–2 mm. long or nearly obsolete; inflorescence somewhat congested to relatively lax, more or less surpassing the foliage, bearing several, rather small, pale-lead-blue flowers; pedicels 1–3 mm. long; calyx-lobes linear-lanceolate, barbellate, or pilosulous throughout; corolla glabrous externally, the tube 10–15 mm. long, about 1 mm. in diameter at the base, somewhat inflated above the insertion of the stamens, slightly constricted at the orifice, the lobes 5–6 mm. long, spreading; follicles stout, continuous, 6–8 cm. long, glabrous.

TYPE LOCALITY: Near the Upper Corner Monument, Grant County, New Mexico.
DISTRIBUTION: New Mexico and Arizona.

10. **Amsonia Peeblesii** Woodson, Bull. Torrey Club **63**: 35. 1936.

Stems 5–6 dm. tall, glabrous; leaves alternate to subverticillate, subsucculent, subsessile, linear-elliptic, 7–10 cm. long, 2–4 mm. broad, obtusely acuminate, attenuate at the base, wholly glabrous; inflorescence rather lax, barely surpassing the foliage, bearing several, medium-sized, pale-lead-blue flowers; pedicels 2–3 mm. long; calyx-lobes linear, obtusely acuminate, 6–6.5 mm.

long, glabrous or very inconspicuously barbellate; corolla glabrous externally, the tube 17–18 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, slightly constricted at the orifice, the lobes 10–12 mm. long, spreading; follicles relatively stout, essentially continuous, 6–10 cm. long, glabrous.

TYPE LOCALITY: [Coconino County,] Arizona.
DISTRIBUTION: Northern Arizona.

11. **Amsonia grandiflora** Alexander, Torreya **34**: 116. 1934.

Stems 5–9 dm. tall, essentially glabrous; leaves alternate to subverticillate, sessile or subsessile, linear, 4–12 cm. long, 2–7 mm. broad, glabrous; inflorescence barely surpassing the foliage, bearing several to many, showy, pale-blue flowers; pedicels 1–4 mm. long; calyx-lobes linear-subulate, 4–7 mm. long, glabrous; corolla glabrous externally, the tube 18–20 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, the orifice conspicuously constricted, the lobes 12–15 mm. long, spreading; follicles unknown.

TYPE LOCALITY: Near Patagonia, [Santa Cruz County,] Arizona.
DISTRIBUTION: Southern Arizona; Durango.

12. **Amsonia longiflora** Torr. Bot. Mex. Bound. Surv. 159. 1859.

Stems 3.5–6 dm. tall, glabrous; leaves alternate to subverticillate, membranaceous, sessile or subsessile, linear-lanceolate to filiform, 2–5 cm. long, 1–3 mm. broad, glabrous; inflorescence condensed, well surpassing the foliage, bearing relatively few, showy, pale-blue or white flowers; pedicels 2–5 mm. long; calyx-lobes linear-subulate, 6–8 mm. long, glabrous; corolla glabrous externally, the tube 30–40 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated over the stamens, sharply constricted at the orifice, the lobes 11–13 mm. long, spreading; follicles relatively slender, continuous, 7–9 cm. long, glabrous.

TYPE LOCALITY: Near El Paso, Texas.
DISTRIBUTION: Western Texas and southern New Mexico.

13. **Amsonia salpignantha** Woodson, Ann. Mo. Bot. Gard. **15**: 417. 1928.

Stems 2–3.5 dm. tall, more or less densely pilose; leaves alternate to subverticillate, membranaceous, sessile or subsessile, linear-lanceolate to subfiliform, 2–5 cm. long, 1–2 mm. broad, pilose or pilosulous; inflorescence barely surpassing the foliage, greatly condensed, bearing several to numerous, showy, pale-lead-blue or white flowers; pedicels 1–4 mm. long, pilosulous; calyx-lobes linear-lanceolate, acuminate, 4–6 mm. long, pilosulous; corolla glabrous externally, the tube 35–40 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, sharply constricted at the orifice, the lobes 5–8 mm. long, spreading; follicles slender, continuous, 7–9 cm. long, glabrous.

TYPE LOCALITY: Rocky prairies on the Cowhouse Creek, Hamilton County, Texas.
DISTRIBUTION: Southwestern Texas; Chihuahua.
ILLUSTRATIONS: Ann. Mo. Bot. Gard. **15**: *pl. 52, f. 21, 22.*

14. **Amsonia brevifolia** A. Gray, Proc. Am. Acad. **12**: 64. 1876.

Stems 1.5–4 dm. tall, wholly glabrous; leaves alternate, subsucculent, broadly ovate, or the upper oblong-lanceolate, 2–3 cm. long, 0.5–1.5 cm. broad, acute to acuminate, obtuse to obtusish at the base, wholly glabrous, the petioles 2 mm. long to nearly obsolete; inflorescence somewhat condensed, barely surpassing the foliage, bearing several, rather small, pale-lead-blue, flowers; pedicels 1 mm. long to nearly obsolete; calyx-lobes linear-lanceolate, 2–4 mm. long, glabrous; corolla glabrous externally, the tube 7–10 mm. long, about 1 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, sharply constricted at the orifice, the lobes 4–6 mm. long, spreading; follicles relatively stout, conspicuously articulate-moniliform, 5–7 cm. long, glabrous.

TYPE LOCALITY: [Mokiah Pass,] Arizona.
DISTRIBUTION: Southern Utah, and southward and westward to eastern Arizona, southern Nevada, and southern California.
ILLUSTRATIONS: Ann. Mo. Bot. Gard. **15**: *pl. 53, f. 26–28.*

15. **Amsonia Eastwoodiana** Rydb. Bull. Torrey Club **40**: 465. 1913.

Wholly glabrous, the stems 3–5 dm. tall; leaves alternate, subsucculent to firmly membranaceous, oblong-lanceolate, or the upper linear-lanceolate, 3–5 cm. long, 3–10 mm. broad, acuminate, sessile or subsessile; inflorescence compact, barely surpassing the foliage, bearing several to rather numerous pale-lead-blue flowers; pedicels 4–6 mm. long; calyx-lobes linear-lanceolate, acuminate, 2–3.5 mm. long; corolla-tube 9–17 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated over the stamens, sharply constricted at the orifice, the lobes 5–7 mm. long, spreading; follicles relatively stout, conspicuously articulate-moniliform, 5–8 cm. long, glabrous.

TYPE LOCALITY: Moab, [Grand County,] Utah.
DISTRIBUTION: Southern Utah and northern Arizona.

16. **Amsonia tomentosa** Torr. & Frém.; Torr. in Frém. Rep. Calif. 316. 1845.

Amsonia brevifolia var. *tomentosa* Jepson, Man. Fl. Pl. Calif. 768. 1925.
Amsonia lanata Alexander, Torreya **34**: 117. 1934.

Stems 2–4 dm. tall, densely tomentose; leaves membranaceous, ovate, or the upper ovate-lanceolate, 2–5 cm. long, 1–2 cm. broad, acute to acuminate, obtuse at the base, densely tomentose, sessile or subsessile; inflorescence rather condensed, barely surpassing the foliage, bearing several to numerous, rather small, pale-lead-blue flowers; pedicels 0.5–3 mm. long, tomentulose; calyx-lobes linear, 3–9 mm. long, tomentulose; corolla glabrous externally, the tube 5–12 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, sharply constricted at the orifice, the lobes 4–10 mm. long, spreading; follicles stout, conspicuously articulate-moniliform, 6–8 cm. long, tomentulose.

TYPE LOCALITY: [Western United States.]
DISTRIBUTION: Southern Nevada and southern California.
ILLUSTRATIONS: Ann. Mo. Bot. Gard. **15**: *pl. 53, f. 23–25.*

17. **Amsonia arenaria** Standley, Proc. Biol. Soc. Wash. **26**: 117. 1913.

Amsonia filiformis A. Nelson, Am. Jour. Bot. **18**: 433. 1931.

Stems 2–4 dm. tall, tomentose; leaves alternate to subverticillate, narrowly oblong-lanceolate to subfiliform, 4–6 cm. long, 1–5 mm. broad, tomentulose, sessile; inflorescence somewhat condensed, barely surpassing the foliage, bearing several to numerous, rather small, pale-lead-blue flowers; pedicels 0.5–3 mm. long; calyx-lobes linear-subulate, 4–8 mm. long, tomentulose; corolla glabrous externally, the tube 8–11 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, sharply constricted at the orifice, the lobes 5–9 mm. long, spreading; follicles relatively stout, conspicuously articulate-moniliform, 5–8 cm. long, nearly glabrous or inconspicuously puberulent.

TYPE LOCALITY: Between Strauss and Anapra, Dona Ana County, New Mexico.
DISTRIBUTION: Extreme western Texas to southeastern Arizona; Chihuahua.
ILLUSTRATIONS: Ann. Mo. Bot. Gard. **15**: *pl. 53, f. 29, 30.*

14. **PLUMERIOPSIS** Rusby & Woodson; Woodson, Ann. Mo. Bot. Gard. **24**: 11. 1937.

Small trees. Leaves alternate, not glandular. Inflorescence racemose, terminal or lateral, bearing several handsome, cream-colored flowers. Calyx 5-parted, the lobes essentially equal, somewhat foliaceous, bearing many squamellae within. Corolla salverform, the tube closed

by 5 dentiform, villosulous scales above the insertion of the stamens, the lobes broadly and obliquely obovate, sharply reflexed. Anthers not connivent, without an enlarged connective. Ovary apocarpous, each carpel containing 1 or 2 ovules, surrounded by a fleshy, multifid, annular nectary. Fruit a berry; seeds 2–4, large, naked.

Type species, *Cerbera Ahouai* L.

1. **Plumeriopsis Ahouai** (L.) Rusby & Woodson; Woodson, Ann. Mo. Bot. Gard. **24**: 11. 1937.

Cerbera Ahouai L. Sp. Pl. ed. 2. 303. 1762.
Cerbera nitida H. B. K. Nov. Gen. & Sp. **3**: 225. 1819.
Thevetia nitida A. DC. in DC. Prodr. **8**: 344. 1844.
Thevetia Ahouai A. DC. in DC. Prodr. **8**: 345. 1844.
Thevetia calophylla Miers, Apoc. S. Am. 20. 1878.

Small tree, occasionally attaining a height of 12 m.; leaves firmly membranaceous to subcoriaceous, obovate to obovate-lanceolate or oblanceolate, 8–20 cm. long, 3–7 cm. broad, obtuse to very abruptly acuminate, wholly glabrous, or sparsely puberulent beneath, the petioles 6–10 mm. long; inflorescence much shorter than the subtending leaves, bearing few to several, rather showy, cream-colored flowers; calyx-lobes ovate to ovate-lanceolate, acute to acuminate, 5–7 mm. long, reflexed, glabrous; corolla salverform, glabrous externally, the tube 25–35 mm. long, about 3 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, the lobes obovate-dolabriform, 17–25 mm. long, sharply reflexed; berries syncarpous, somewhat obreniform-obpyriform, 3.5–4.5 cm. broad, brilliant red, containing 2–4 large, naked seeds.

TYPE LOCALITY: Brazil.
DISTRIBUTION: Southern Mexico and Central America; also in South America.
ILLUSTRATION: Miers, Apoc. S. Am. *pl. 4.*

15. **THEVETIA** Adans. Fam. Pl. **2**: 171. 1763.

Shrubs and small trees. Leaves alternate, not glandular. Inflorescence cymose, few-flowered to several-flowered. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, somewhat foliaceous, bearing many squamellae within. Corolla salverform, the tube much shorter than the lobes, closed at the orifice by 5 small villous scales inserted above the stamens, the lobes broadly obovate-dolabriform, spreading. Anthers not connivent, without an enlarged connective. Ovary apocarpous, containing 2–4 ovules, surrounded by a fleshy annular nectary. Fruit syncarpous, drupaceous, containing 2, or occasionally 4, large, naked seeds.

Type species, *Cerbera Thevetia* L.

Secondary veins of the leaves obscure or obsolete beneath when dry.
- Leaves elliptic-lanceolate, acute to very shortly and abruptly acuminate; drupes 2–3.2 cm. broad. — 1. *T. Gaumeri.*
- Leaves linear, narrowly acuminate; drupes 4–4.5 cm. broad. — 2. *T. peruviana.*

Secondary veins of the leaves very obvious beneath when dry.
- Leaves wholly glabrous; drupes 3–3.5 cm. broad, the stony endocarp not manifestly 2-corniculate, or only broadly so. — 3. *T. plumeriaefolia.*
- Leaves pubescent, at least beneath; drupes broader, the stony endocarp narrowly 2-corniculate.
  - Corolla 5.5–7 cm. long; drupes 4.5–5 cm. broad; leaves obovate to broadly oblong-oblanceolate, broadly obtuse or rounded to very shortly and abruptly acuminate. — 4. *T. ovata.*
  - Corolla 8.5–9.5 cm. long; drupes 6–6.5 cm. broad; leaves linear-oblanceolate, rather narrowly acuminate. — 5. *T. thevetioides.*

1. **Thevetia Gaumeri** Hemsl. in Hook. Ic. *pl. 1517.* 1886.

Thevetia spathulata Millsp. Field Mus. Publ. Bot. **1**: 383. 1898.
Thevetia Steerei Woodson, Am. Jour. Bot. **22**: 685. 1935.

Shrub or small tree, occasionally attaining a height of 10 m., wholly glabrous; leaves firmly membranaceous, elliptic-oblanceolate, 7–18 cm. long, 1.5–3.5 cm. broad, acute to very shortly and abruptly acuminate, acutely cuneate to obtusish at the base, the secondary veins arcuate,

rather distant, not obvious on the lower surface when dry, the petioles 1–2 cm. long; inflorescence terminal or lateral, bearing several handsome orange or pinkish-yellow flowers; calyx-lobes ovate to ovate-lanceolate, 8–10 mm. long; corolla salverform, the tube 10–13 mm. long, about 2 mm. in diameter at the base, the lobes broadly obovate-dolabriform, 25–40 mm. long, spreading; drupes bright-red, 2–3.2 cm. broad.

TYPE LOCALITY: Cozumel Island, Yucatan.
DISTRIBUTION: Yucatan and British Honduras.
ILLUSTRATION: Hook. Ic. *pl. 1517.*

2. **Thevetia peruviana** (Pers.) K. Schumann, in E. & P. Nat. Pfl. 4²: 159. 1895.

Cerbera Thevetia L. Sp. Pl. ed. 2. 304. 1762.
Cerbera peruviana Pers. Syn. Pl. 1: 267. 1805.
Thevetia neriifolia Juss.; Steud. Nom. Bot. Phan. 180. 1821.
Thevetia Thevetia Millsp. Field Mus. Publ. Bot. 2: 83. 1900.

Erect or clambering shrub, frequently lianoid, glabrous throughout; leaves firmly membranaceous, linear to linear-lanceolate, 7–12 cm. long, 0.6–1.3 cm. broad, narrowly acuminate, lustrous above, the secondary veins immersed and very obscure when dry, the petioles 3–5 mm. long; inflorescence terminal or lateral, bearing several showy, orange or pinkish-yellow flowers; calyx-lobes ovate to ovate-lanceolate, 4–6 mm. long; corolla salverform, the tube 10–15 mm. long, about 3 mm. in diameter at the base, the lobes broadly obovate-dolabriform, 35–45 mm. long, spreading; drupes bright-red, 4–4.5 cm. long.

TYPE LOCALITY: Tropical America.
DISTRIBUTION: Throughout Central America, where possibly native; frequently planted in the tropics of both hemispheres.
ILLUSTRATIONS: Mart. Fl. Bras. 6¹: *pl. 10, f. 2;* E. & P. Nat. Pfl. 4²: 157. *f. 57, T–X.*

3. **Thevetia plumeriaefolia** Benth. Bot. Voy. Sulph. 124. 1845.

Shrub or small tree, glabrous throughout; leaves firmly membranaceous, obovate-oblong, 4–8.5 cm. long, 1.3–3.5 cm. broad, rounded to broadly obtuse, acutely cuneate at the base, somewhat lustrous above, the secondary veins subhorizontal, very prominent below, anastomosing into a conspicuous marginal vein, the petioles 5–12 mm. long; inflorescence bearing rather few handsome, orange or pinkish-yellow flowers; calyx-lobes ovate, acute to acuminate, 4–6 mm. long, essentially glabrous, more or less reflexed; corolla infundibuliform, the tube proper 15–22 mm. long, about 2 mm. in diameter at the base, gradually narrowed upward to the insertion of the stamens, the throat conic-campanulate, 15–18 mm. long, about 10 mm. in diameter at the orifice, the lobes obovate-dolabriform, 45–60 mm. long, spreading; drupes obtusely bicorniculate, 3–3.5 cm. broad.

TYPE LOCALITY: Gulf of Fonseca, Honduras.
DISTRIBUTION: Sinaloa; Oaxaca; Salvador and Honduras.
ILLUSTRATION: Bot. Voy. Sulph. *pl. 43.*

4. **Thevetia ovata** (Cav.) A. DC. in DC. Prodr. 8: 344. 1844.

Cerbera ovata Cav. Ic. 3: 35. 1796.
Cerbera cuneifolia H. B. K. Nov. Gen. & Sp. 3: 224. 1819.
Thevetia cuneifolia A. DC. in DC. Prodr. 8: 344. 1844.

Shrub or small tree, 3–5 m. tall; leaves firmly membranaceous, obovate to broadly oblong-oblanceolate, 6–11 cm. long, 1–3.5 cm. broad, rounded to broadly obtuse or very shortly and abruptly acuminate, acutely cuneate at the base, glabrous or essentially so above, densely and finely puberulent beneath, the secondary veins very prominent on both sides, anastomosing into a conspicuous marginal vein, the petioles 5–10 mm. long; inflorescence bearing relatively few showy, orange or pinkish-yellow flowers; calyx-lobes ovate, acuminate, 8–12 mm. long, reflexed, minutely puberulent; corolla infundibuliform, glabrous or merely somewhat papillate externally, the tube proper 15–20 mm. long, about 3 mm. in diameter at the base, gradually narrowed toward the insertion of the stamens, the throat campanulate, 12–15 mm. long, 10–

15 mm. in diameter at the orifice, the lobes obovate-dolabriform, 25–35 mm. long, spreading; drupes 4.5–5 cm. broad.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Nayarit and Jalisco; Oaxaca; Guatemala.
ILLUSTRATION: Cav. Ic. *pl. 270*.

5. **Thevetia thevetioides** (H. B. K.) K. Schumann, in E. & P. Nat. Pfl. 4²: 159. 1895.

Cerbera thevetioides H. B. K. Nov. Gen. & Sp. **3**: 223. 1819.
Thevetia Yccotli A. DC. in DC. Prodr. **8**: 343. 1844.
Thevetia Yccotli var. *glabra* A. DC. in DC. Prodr. **8**: 343. 1844.

Shrub or small tree, occasionally attaining a height of 10 m.; leaves membranaceous, linear-oblanceolate, 6–10 cm. long, 4–12 mm. broad, acutely acuminate, attenuate at the base, glabrous or essentially so above, minutely puberulent or rarely glabrate beneath, the secondary veins conspicuous on both sides, the petioles 3–5 mm. long; inflorescence bearing relatively few showy, orange or pinkish-yellow flowers; calyx-lobes ovate-lanceolate, acute, 6–8 mm. long, puberulent-papillate to glabrate, spreading or only slightly reflexed; corolla infundibuliform, glabrous externally, the tube proper 20–25 mm. long, about 2 mm. in diameter at the base, slightly narrowed toward the insertion of the stamens, the throat very shallowly conic-campanulate, 10–15 mm. long, 10–13 mm. in diameter at the orifice, the lobes obovate-dolabriform, 50–55 mm. long, spreading; drupes 6–6.5 cm. broad.

TYPE LOCALITY: Near Tasco [Guerrero].
DISTRIBUTION: Sinaloa, Morelos, Guerrero, and Oaxaca.
ILLUSTRATION: Ramírez, Mat. Med. Mex. **1**: *pl. opp. 343*.

16. **RAUWOLFIA** L. Sp. Pl. 208. 1753.

Shrubs or small trees. Leaves verticillate in North American species, the petioles glandular above, at least at the very base. Inflorescence cymose, terminal or lateral, bearing numerous, usually small, greenish flowers. Calyx 5-parted, the lobes essentially equal, without squamellae. Corolla salverform or tubular-salverform, the limb equally 5-lobed, sinistrorsely contorted. Anthers not connivent, without an enlarged connective. Ovary apocarpous, each carpel containing 1 or 2 ovules, surrounded by a low annular nectary. Fruit syncarpous, drupaceous; seeds 1 or 2, naked.

Type species, *Rauwolfia tetraphylla* L.

Corolla 8–30 mm. long, the lobes conspicuous, more or less reflexed or spreading, the tube not inflated at the base, or only slightly so; petioles glandular only at the very base.
  Corolla 13–30 mm. long; leaves relatively small, 1.5–8 cm. long, coriaceous, obtuse to rounded; Cuba.
    Corolla-lobes 4–5 mm. long, much shorter than the tube.
      Leaves oblanceolate-elliptic. — 1. *R. salicifolia*.
      Leaves linear-lanceolate. — 2. *R. linearifolia*.
    Corolla-lobes 12–13 mm. long, nearly equaling the tube; leaves obovate-elliptic. — 3. *R. cubana*.
  Corolla 6.5–13 mm. long; leaves relatively large, 3–16 cm. long, membranaceous to subcoriaceous, acute to acuminate.
    Inflorescence lax and relatively few-flowered, long-peduncled; corolla-tube not inflated at the base.
      Corolla 10–13 mm. long; leaves 7–16 cm. long; Panama. — 4. *R. purpurascens*.
      Corolla 6.5–7.5 mm. long; leaves 6–9 cm. long; West Indies. — 5. *R. biauriculata*.
    Inflorescence relatively dense and many-flowered, short-peduncled; corolla-tube slightly inflated at the base; West Indies. — 6. *R. tetraphylla*.
Corolla 3.5–7.5 mm. long, the lobes inconspicuous, nearly erect or only very slightly spreading, the tube more or less inflated at the base; petioles more or less glandular along the ventral surface, at least at the base.
  Petioles glandular at the very base; drupes 8–15 mm. long; Panama. — 7. *R. macrocarpa*.
  Petioles more or less glandular throughout; drupes 3–8 mm. long.
    Corolla-lobes nearly as long as the tube, slightly spreading.
      Leaves thinly membranaceous, glabrous or nearly so; West Indies. — 8. *R. Lamarckii*.
      Leaves firmly membranaceous to chartaceous, densely pubescent; Costa Rica. — 9. *R. mollissima*.
    Corolla-lobes much shorter than the tube, virtually erect.

Leaves in whorls of 3, narrowly acuminate to subcaudate-acuminate, or occasionally broadly acute, nearly isophyllous.
  Leaves glabrous, gradually acuminate to subcaudate-acuminate; Cuba. 10. *R. Alphonsiana.*
  Leaves minutely puberulent beneath, shortly and abruptly subcaudate-acuminate to broadly acute; Costa Rica. 11. *R. indecora.*
Leaves in whorls of 4 (rarely 3 or 5), obtuse to broadly acute, manifestly heterophyllous. 12. *R. hirsuta.*

1. **Rauwolfia salicifolia** Griseb. Mem. Am. Acad. II. **8**: 519. 1862.

Shrub or small tree, glabrous throughout; leaves in whorls of 3 or 4, coriaceous, oblanceolate-elliptic, 3–8 cm. long, 0.8–2.8 cm. broad, very broadly obtuse to rounded at the apex, attenuate at the base, lustrous above, the veins somewhat crowded and immersed, the petioles 3–8 mm. long; inflorescence congested, somewhat shorter than the subtending leaves, bearing several small, greenish-yellow to purplish flowers; pedicels 1–2 mm. long; calyx-lobes ovate, acute, 1–1.5 mm. long, usually with a few, minute, glandular hairs along the margins; corolla salverform, glabrous externally, the tube 9–11 mm. long, about 1 mm. in diameter at the base, the lobes broadly oblong-dolabriform, obtuse, 4–5 mm. long, somewhat spreading; anthers inserted near the orifice of the corolla-tube; mature fruit unknown.

TYPE LOCALITY: Monte Verde [Oriente], Cuba.
DISTRIBUTION: Cuba.

2. **Rauwolfia linearifolia** Britton & Wilson; Britton, Mem. Torrey Club **16**: 94. 1920.

Shrub 4–5 dm. tall, wholly glabrous; leaves ternate, subsessile, subcoriaceous, linear-lanceolate, 4–6.5 cm. long, 3–4 mm. broad, obtuse to rounded, long-attenuate at the base, somewhat lustrous above; inflorescence few-flowered, about equaling or somewhat shorter than the subtending leaves; pedicels 1–2 mm. long; calyx-lobes lanceolate, acute, 1–1.5 mm. long; corolla salverform, glabrous externally, the tube 7–9 mm. long, somewhat less than 1 mm. in diameter at the base, the lobes broadly oblong-dolabriform, obtuse, 4–4.5 mm. long, somewhat spreading; anthers inserted near the orifice of the corolla-tube; mature fruit unknown.

TYPE LOCALITY: Paso Estancia to the Pinales, Oriente, Cuba.
DISTRIBUTION: Eastern Cuba.

3. **Rauwolfia cubana** A. DC. in DC. Prodr. **8**: 339. 1844.

Shrub 5–15 dm. tall, wholly glabrous; leaves in whorls of 3 (rarely 4), coriaceous or subcoriaceous, obovate to obovate-elliptic, 1.5–7 cm. long, 0.8–3 cm. broad, rounded to very broadly obtuse, acutely cuneate at the base, lustrous above, the petioles 5–17 mm. long; inflorescence corymbiform, about equaling the subtending leaves, bearing several medium-sized, greenish or purplish-cream-colored flowers; pedicels 2–3 mm. long; calyx-lobes ovate, acute to obtusish, 2–3 mm. long, bearing numerous, minute, stipitate glands along the margins; corolla salverform, glabrous or very minutely papillate externally, the tube 16–17 mm. long, about 1.3 mm. in diameter at the base, the lobes obliquely obovate-oblong, obtuse, 12–13 mm. long, widely spreading; anthers inserted near the orifice of the corolla-tube; mature fruit unknown.

TYPE LOCALITY: Cuba.
DISTRIBUTION: Cuba.

4. **Rauwolfia purpurascens** Standley, Field Mus. Publ. Bot. **4**: 255. 1929.

Stout liana (?), wholly glabrous throughout; leaves firmly membranaceous to subcoriaceous, obovate to obovate-elliptic, 7–16 cm. long, 2.5–7 cm. broad, shortly acuminate to obtusish, acutely cuneate at the base, slightly lustrous above, the secondary veins relatively distant, the petioles 10–20 mm. long, not glandular; inflorescence lax and relatively few-flowered, long-peduncled, somewhat shorter than the leaves; calyx-lobes ovate, acuminate, 1–1.5 mm. long, glabrous; pedicels 3–5 mm. long; corolla salverform, glabrous externally, the tube 6–7 mm. long,

about 1 mm. in diameter and not inflated at the base, the lobes oblong-dolabriform, obtuse, 4–6 mm. long, somewhat spreading; anthers inserted near the orifice of the corolla-tube; fruit unknown.

TYPE LOCALITY: Cricamola Valley, Bocas del Toro, Panama.
DISTRIBUTION: Known only from the type locality.

5. **Rauwolfia biauriculata** Muell.-Arg. Linnaea **30**: 396. 1860.

Shrub or small tree, wholly glabrous; leaves ternate, subcoriaceous, broadly elliptic to obovate-elliptic, 6–9 cm. long, 2–4 cm. broad, obtusely acuminate to obtusely subcaudate-acuminate, rather broadly cuneate at the base, opaque or slightly lustrous above, the petioles 8–12 mm. long, not glandular; inflorescence loosely corymbiform, relatively few-flowered, long-peduncled, nearly as long as the subtending leaves; pedicels 3–4 mm. long; calyx-lobes ovate, acute, 1–2 mm. long, sparsely glandular-subdentate along the margins; corolla salverform, glabrous externally, the tube 3.5–4 mm. long, about 1 mm. in diameter and not inflated at the base, the lobes broadly and obliquely oblong-elliptic, obtuse, 3–3.5 mm. long, slightly spreading; anthers inserted near the orifice of the corolla-tube; fruits not seen.

TYPE LOCALITY: Hispaniola.
DISTRIBUTION: Santo Domingo; Guadeloupe and Dominica; also in Trinidad.

6. **Rauwolfia tetraphylla** L. Sp. Pl. 208. 1753.

Rauwolfia nitida Jacq. Enum. Pl. Carib. 14. 1760.
Rauwolfia canescens Descourt. Fl. Ant. **3**: 151. 1827. Not *R. canescens* L. 1762.
Rauwolfia lanceolata A. DC. in DC. Prodr. **8**: 337. 1844.

Small tree, 3–14 m. tall, essentially glabrous; leaves in whorls of 3 or 4, firmly membranaceous to subcoriaceous, narrowly oblong-elliptic to ovate-elliptic, 3–12 cm. long, 1.5–5 cm. broad, rather gradually acuminate to obtusish, acutely acuminate to obtuse at the base, somewhat lustrous above, the petioles 4–20 mm. long, not glandular; inflorescence relatively dense and many-flowered, rather short-peduncled, much shorter than the subtending leaves; pedicels 3–5 mm. long; calyx-lobes broadly ovate, obtuse, 1–1.5 mm. long, very minutely papillate externally, ciliate with minute glandular hairs; corolla salverform, glabrous externally, the tube 5–6 mm. long, about 1.5 mm. in diameter and slightly inflated at the base, the lobes obliquely subrotund, 3–3.5 mm. long, somewhat spreading; anthers inserted near the orifice of the corolla-tube; drupes somewhat emarginate, 7–10 mm. long, 9–13 mm. broad.

TYPE LOCALITY: Tropical America [Jamaica].
DISTRIBUTION: Bahamas, Cuba, Jamaica, and Hispaniola; Virgin Islands and St. Kitts.
ILLUSTRATIONS: L. Hort. Cliff. *pl. 9;* Bot. Cab. *pl. 339;* Mart. Fl. Bras. **6**[1]: *pl. 9.*

7. **Rauwolfia macrocarpa** Standley, Field Mus. Publ. Bot. **4**: 254. 1929.

Small tree, 5–7 m. tall; leaves quaternate, very unequal, firmly membranaceous, ovate to obovate-elliptic, 4–12 cm. long, 1.5–5 cm. broad, shortly and acutely acuminate to obtusish, broadly acute to obtuse at the base, essentially glabrous above, very minutely and sparsely puberulent to glabrate beneath, the petioles 2–4 mm. long, glandular at the very base; inflorescence very few-flowered, much shorter than the subtending leaves; pedicels 2–3 mm. long; calyx-lobes ovate-subreniform, rounded, 1–1.5 mm. long, minutely puberulent-papillate; corolla unknown; drupes subglobose, very inconspicuously emarginate, 8–15 mm. in diameter, yellow-red when mature.

TYPE LOCALITY: Progresso, Chiriquí, Panama.
DISTRIBUTION: Known only from the type locality.

8. **Rauwolfia Lamarckii** A. DC. in DC. Prodr. **8**: 337. 1844.

Rauwolfia nitida Lam. Tab. Encyc. **2**: 304. 1819. Not *R. nitida* Jacq. 1760.
Rauwolfia latifolia A. DC. in DC. Prodr. **8**: 339. 1844.

Shrub or small tree, 2–4 m. tall, with glabrous stem and foliage; leaves in whorls of 3 or 4, manifestly unequal, thinly membranaceous, ovate to narrowly lance-elliptic, 4–12 cm. long,

1.5–5 cm. broad, acutely acuminate, acutely cuneate at the base, opaque, the petioles 3–6 mm. long, inconspicuously glandular, especially toward the base; inflorescence condensed, bearing many white to greenish flowers, much shorter than the subtending leaves; pedicels 2–2.5 mm. long; calyx-lobes ovate, acute to acuminate, 1–1.5 mm. long, inconspicuously eglandular-ciliate; corolla glabrous or minutely papillate externally, the tube 3–4 mm. long, about 1.5 mm. in diameter at the base, somewhat narrowed at the insertion of the stamens, above this somewhat inflated, the lobes obovate-subrotund, rounded, 3–3.5 mm. long, only slightly spreading; stamens inserted near or somewhat above the middle of the corolla-tube; drupes subglobose-reniform, very slightly emarginate, 5–6 mm. long, 6–8 mm. broad.

TYPE LOCALITY: Guadeloupe.
DISTRIBUTION: Cuba, Puerto Rico, and the Lesser Antilles.
ILLUSTRATION: Lam. Tab. Encyc. *pl. 172, f. 1.*

9. **Rauwolfia mollissima** Markgraf, Repert. Sp. Nov. **20**: 119. 1924.

Small tree, the stems pilose when young, glabrescent at maturity; leaves in whorls of 3 or 4, unequal, firmly membranaceous, obovate to obovate-lanceolate, 10–12 cm. long, 5–6 cm. broad, shortly acuminate to obtusish, broadly acute at the base, pilosulous above along the midrib and veins, densely and generally tomentulose beneath, the petioles 4–7 mm. long, glandular throughout above; inflorescence relatively condensed, much shorter than the subtending leaves, several-flowered, densely pubescent; calyx-lobes ovate, acuminate, 1–1.5 mm. long, pilosulous; corolla salverform, very minutely puberulent-papillate externally, the tube 3–4 mm. long, about 1 mm. in diameter at the base, somewhat constricted at the insertion of the stamens, the lobes obovate, obtuse, 3–3.5 mm. long; drupes subglobose-subreniform, about 5 mm. in diameter.

TYPE LOCALITY: Nicoya, Costa Rica.
DISTRIBUTION: Known only from the type locality.

10. **Rauwolfia Alphonsiana** Muell.-Arg. Linnaea **30**: 394. 1860.

Rauwolfia parviflora var. *cubana* A. DC. in DC. Prodr. **8**: 340. 1844.

Small shrub, 1.5–2 m. tall, the stems wholly glabrous; leaves ternate, membranaceous, ovate-elliptic to lance-elliptic, 1.5–5.5 cm. long, 0.7–2 cm. broad, narrowly and acutely acuminate to subcaudate-acuminate, rather broadly and acutely cuneate at the base, opaque, glabrous, the petioles 1–3 mm. long, glandular above; inflorescence corymbose, somewhat shorter than the subtending leaves, bearing relatively few small greenish-white flowers; pedicels 1–2 mm. long; calyx-lobes broadly ovate, 1–1.25 mm. long, acute, papillate externally, the margins glandular-ciliolate; corolla salverform, minutely puberulent-papillate externally, at least on the upper part of the tube, the tube 3–3.5 mm. long, about 1 mm. in diameter at the base, somewhat constricted at the insertion of the stamens, the lobes subrotund, about 1 mm. in diameter, virtually erect; stamens inserted slightly above the middle of the corolla-tube; drupes subglobose-subreniform, somewhat emarginate, 3–4 mm. long, 4–5 mm. broad.

TYPE LOCALITY: Macurijes, [Camaguey,] Cuba.
DISTRIBUTION: Cuba.

11. **Rauwolfia indecora** Woodson, Ann. Mo. Bot. Gard. **24**: 12. 1937.

Shrub; leaves ternate, membranaceous, ovate, 0.9–2.5 cm. long, 0.5–1.2 cm. broad, broadly acute to shortly and abruptly subcaudately acuminate, obtuse at the base, glabrous, opaque above, minutely puberulent beneath, the petioles scarcely 0.5 mm. long, glandular; inflorescence 1–3-flowered, about equaling the leaves; pedicels 1–3 mm. long; calyx-lobes ovate-lanceolate, narrowly acuminate, 1–1.5 mm. long; corolla unknown; drupes subglobose-subreniform, inconspicuously emarginate, 6–8 mm. long, 7–9 mm. broad.

TYPE LOCALITY: Catalina, Costa Rica; alt. 600 meters.
DISTRIBUTION: Known only from the type locality.

12. **Rauwolfia hirsuta** Jacq. Enum. Pl. Carib. 14. 1760.

Rauwolfia tomentosa Jacq. Enum. Pl. Carib. 14. 1760.
Rauwolfia canescens L. Sp. Pl. ed. 2. 303. 1762.
Rauwolfia subpubescens L. Mant. 345. 1771.
Rauwolfia heterophylla R. & S. Syst. Veg. **4**: 805. 1819.
Rauwolfia canescens var. *glabra* Muell.-Arg. Linnaea **30**: 395. 1860.
Rauwolfia canescens var. *tomentosa* Muell.-Arg. Linnaea **30**: 395. 1860.
Rauwolfia canescens var. *intermedia* Markgraf, Repert. Sp. Nov. **20**: 115. 1924.

Freely branched shrub, 1–2.5 m. tall, softly pubescent throughout to glabrous; leaves predominantly in whorls of 4 (occasionally of 3 or 5), very unequal, firmly membranaceous, narrowly oblong-elliptic to broadly ovate-elliptic or obovate-elliptic, 1.5–13 cm. long, 0.7–5 cm. broad, acute to obtuse, broadly acute to obtuse at the base, opaque, the petioles 1–7 mm. long, glandular; inflorescence condensed, much shorter than the subtending leaves, few-flowered to many-flowered; pedicels 2–3 mm. long; calyx-lobes ovate to ovate-lanceolate, acute to obtusish, 1.5–3 mm. long, glabrous to puberulent; corolla salverform, minutely puberulent-papillate to glabrous externally, the tube 2.5–4 mm. long, about 1.5 mm. in diameter at the base, somewhat constricted at the insertion of the stamens, the lobes obliquely obovate-subrotund, rounded, 1–1.5 mm. long, virtually erect; stamens inserted about the middle of the corolla-tube or slightly lower; drupes subglobose-subreniform, not emarginate or only very slightly so, 5–8 mm. in diameter, somewhat flattened laterally.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Southern Mexico and Central America; West Indies; also in northern South America.
ILLUSTRATIONS: Plumier, Pl. Am. *pl. 236, f. 2;* Jacq. Sel. Stirp. Am. *pl. 259, f. 17;* Mart. Fl. Bras. **6**[1]: *pl. 9, f. 3.*

17. **VALLESIA** R. & P. Fl. Per. **2**: 26. 1799.

Shrubs or small trees. Leaves alternate, subtended by a small, dentate, axillary, stipular gland. Inflorescence lateral, umbellate or umbellately cymose, simple or dichotomous, bearing several to numerous, small to somewhat showy, white or yellowish flowers. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, without squamellae. Corolla salverform, the limb regularly 5-parted, sinistrorsely contorted. Anthers not connivent, without an enlarged connective. Ovary apocarpous, without a nectary, the carpels containing 1 or 2 ovules; fruits drupaceous, apocarpous, usually only a single carpel developing.

Type species, *Rauwolfia glabra* Cav.

Corolla 5–6 mm. long, the convolute lobes of the bud broadly conic; Mexico. 1. *V. glabra.*
Corolla 10–18 mm. long, the convolute lobes of the bud cylindric-ovoid.
  Corolla 10–15 mm. long; seeds (so far as known), including the stony layer of the endocarp, 10–14 mm. long.
    Stems and leaves glabrous or essentially so.
      Leaves ovate-elliptic to obovate-elliptic, 2–8 cm. long. 2. *V. antillana.*
      Leaves oblong-elliptic to oblong-obovate, 6–14 cm. long.
        Inflorescence umbelliform, the secondary peduncles obsolete.
          Leaves rounded or subtruncate at the base; corolla-lobes only slightly shorter than the tube; Hispaniola. 3. *V. montana.*
          Leaves obtuse to broadly acute at the base; corolla-lobes about half as long as the tube; Mexico. 4. *V. Baileyana.*
        Inflorescence corymbiform, the secondary peduncles short, but manifest; Costa Rica. 5. *V. flexuosa.*
    Stems and leaves densely pubescent, at least when young; Mexico.
      Leaves ovate-oblong, obtuse at the base, 3–6 cm. long. 6. *V. laciniata.*
      Leaves oblong to oblong-elliptic, obscurely subcordate to truncate at the base, 6–10 cm. long. 7. *V. Conzattii.*
  Corolla 15–18 mm. long; seeds, including the stony layer of the endocarp, 17–20 mm. long. 8. *V. mexicana.*

1. **Vallesia glabra** (Cav.) Link, Enum. **1**: 207. 1821.

Rauwolfia glabra Cav. Ic. **3**: 50. 1796.
Vallesia cymbaefolia Ortega, Dec. 58. 1798.
Vallesia dichotoma R. & P. Fl. Per. **2**: 26. 1799.
Vallesia chiococcoides H. B. K. Nov. Gen. & Sp. **3**: 233. 1819.
Vallesia laciniata Brand. Proc. Calif. Acad. II. **2**: 182, in part. 1889.

Shrub or small tree, 2–6 m. tall, glabrous throughout, or sparsely puberulent on the young leaves and inflorescence; leaves firmly membranaceous to subcoriaceous, ovate-lanceolate to

oblong-lanceolate, 2.5–6 cm. long, 0.6–2 cm. broad, acutely acuminate to obtusish, broadly acute to obtusish at the base, the petioles 2–3 mm. long; inflorescence simple or dichotomous, umbellate, bearing several to numerous, small, greenish-white flowers; pedicels 2–4 mm. long; calyx-lobes broadly ovate, acute, 1–1.5 mm. long; corolla salverform, glabrous externally, the tube 3–4 mm. long, about 0.75 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, sharply constricted at the orifice, the lobes obliquely ovate, 1.5–2 mm. long, virtually erect; drupes opalescent, oblong-ovoid, the seeds, including the stony layer of the endocarp, 9–10 mm. long.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Lower California to Vera Cruz and Oaxaca; also in Pacific coastal South America.
ILLUSTRATIONS: Cav. Ic. *pl. 297;* R. & P. Fl. Per. *pl. 151;* H. B. K. Nov. Gen. & Sp. *pl. 241.*

2. **Vallesia antillana** Woodson, Ann. Mo. Bot. Gard. **24**: 13. 1937.

Shrub, 2–4 m. tall, wholly glabrous; leaves firmly membranaceous to subcoriaceous, ovate-elliptic to obovate-elliptic, 2–8 cm. long, 1–3 cm. broad, acutely acuminate to acute, or rarely obtusish, obtuse to broadly cuneate at the base, the petioles 4–7 mm. long; inflorescence dichotomous, infrequently simple, much shorter than the subtending leaves, bearing several to numerous, small, white flowers; pedicels 4–5 mm. long; calyx-lobes ovate-triangular, acuminate, 0.7–1 mm. long; corolla salverform, the tube 6–7 mm. long, about 1.25 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, the orifice somewhat constricted, the lobes oblong-elliptic, obtuse, 4.5–5 mm. long, narrowly ovoid-cylindric when convolute in the bud, slightly spreading at anthesis; drupes narrowly oblong-ovoid, opalescent, the seed about 1 cm. long, including the stony layer of the endocarp.

TYPE LOCALITY: Key West, Florida.
DISTRIBUTION: Southern peninsular Florida, Bahamas, Cuba, and Hispaniola.

3. **Vallesia montana** Urban, Symb. Ant. 7: 334. 1912.

Shrub or small tree, 3–4 m. tall, wholly glabrous; leaves firmly membranaceous, oblong-elliptic, 6–12 cm. long, 1.5–3 cm. broad, acutely acuminate to somewhat obtuse, rounded to subtruncate at the base, the petioles 4–6 mm. long; inflorescence umbelliform, dichotomous to simple, much shorter than the subtending leaves, bearing few to several white flowers of medium size; pedicels 5–6 mm. long; calyx-lobes ovate-lanceolate, acuminate, 1–1.5 mm. long, scarcely imbricate; corolla salverform, the tube 6–8 mm. long, about 0.8 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, the lobes obliquely ovate to ovate-oblong, obtuse, 4.5–5.5 mm. long, ovoid-cylindric when convolute in the bud, somewhat spreading at anthesis; drupes obliquely oblong-obovoid, opalescent, the seeds 11–14 mm. long, including the stony layer of the endocarp.

TYPE LOCALITY: Near Constanza, Santo Domingo; alt. 1450 meters.
DISTRIBUTION: Hispaniola.

4. **Vallesia Baileyana** Woodson, Ann. Mo. Bot. Gard. **24**: 14. 1937.

Shrub, 2–4 m. tall, wholly glabrous; leaves firmly membranaceous, oblong-lanceolate, 6–9 cm. long, 1.2–2 cm. broad, acute at the apex, obtuse to broadly acute at the base, the petioles 7–9 mm. long; inflorescence subumbelliform, dichotomous, much shorter than the subtending leaves, bearing several to numerous white or yellowish flowers of medium size; pedicels 3–4 mm. long; calyx-lobes narrowly ovate, acute, 0.8–1 mm. long; corolla salverform, the tube 9–10 mm. long, about 1 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, constricted at the orifice, the lobes oblong-ovate, rounded, 5–6 mm. long, oblong-ovoid when convolute in the bud, somewhat spreading at anthesis; drupes unknown.

TYPE LOCALITY: Nacapule Canyon, near Guaymas, Sonora.
DISTRIBUTION: Known only from the type locality.

5. **Vallesia flexuosa** Woodson, Ann. Mo. Bot. Gard. **24**: 14. 1937.

Small tree, wholly glabrous; leaves membranaceous, obovate-oblong, 6–17 cm. long, 2.5–4 cm. broad, acutely acuminate, broadly obtuse to subtruncate at the base, the petioles 5–7 mm. long; inflorescence corymbiform, subumbellate, irregularly scorpioid, much shorter than the subtending leaves, bearing several small white flowers, the secondary peduncles short but manifest; pedicels 3–4 mm. long; calyx-lobes narrowly ovate, narrowly acuminate, 1–1.5 mm. long; corolla salverform, the tube 8–9 mm. long, about 1 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, constricted at the orifice, the lobes oblong-ovate, 3–4 mm. long, cylindric-ovoid when convolute in the bud, somewhat spreading at anthesis; drupes unknown.

TYPE LOCALITY: Zarcera, Costa Rica; alt. 1550 meters.
DISTRIBUTION: Known only from the type locality.

6. **Vallesia laciniata** Brand. Proc. Calif. Acad. II. **2**: 182. 1889.

Shrub, 1–2 m. tall, the stem densely puberulent when young, soon becoming glabrate; leaves membranaceous, ovate-oblong, 3–6 cm. long, 1.5–3 cm. broad, acute at the apex, obtuse at the base, densely puberulent on both sides, becoming somewhat glabrate in age, the petioles 5–8 mm. long; inflorescence umbelliform, bearing several, small, white flowers; pedicels 3–4 mm. long; calyx-lobes ovate, acuminate, 1–1.5 mm. long; corolla salverform, the tube 6–7 mm. long, about 1 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, constricted at the orifice, the lobes oblong-ovate, 3.5–4.5 mm. long, oblong-ovoid when convolute in the bud, slightly spreading at anthesis; drupes obliquely oblong-ovoid, opalescent, the seeds about 1 cm. long, including the stony layer of the endocarp.

TYPE LOCALITY: San Sebastian, Lower California.
DISTRIBUTION: Lower California.

7. **Vallesia Conzattii** Standley, Jour. Wash. Acad. **15**: 480. 1925.

Shrub or small tree; stems densely tomentulose when young, at length becoming glabrate; leaves membranaceous, oblong to oblong-elliptic, 6–10 cm. long, 2–2.5 cm. broad, acute to shortly and acutely acuminate, obscurely subcordate to truncate at the base, rather sparsely pilosulous above, densely tomentulose or puberulent beneath, the petioles 3–5 mm. long; inflorescence umbelliform, dichotomous to simple, densely tomentulose or puberulent, much shorter than the subtending leaves, bearing numerous, rather showy, white flowers; pedicels puberulent, 3–4 mm. long; calyx-lobes ovate, acute to acuminate, 1–1.5 mm. long, essentially glabrous; corolla salverform, glabrous externally, the tube 7–8 mm. long, about 1 mm. in diameter at the base, inflated at the insertion of the stamens, constricted at the orifice, the lobes obliquely ovate-oblong, 4.5–5 mm. long, oblong-ovoid when convolute in the bud, spreading at anthesis; mature drupes unknown.

TYPE LOCALITY: Tlacolula, Oaxaca.
DISTRIBUTION: Known only from the type locality.

8. **Vallesia mexicana** Muell.-Arg. Linnaea **30**: 393. 1860.

Small tree, 5–7 m. tall, with glabrous stems and foliage; leaves firmly membranaceous to subcoriaceous, broadly oval to broadly oblong-elliptic, 6–14 cm. long, 2–4.5 cm. broad, acutely acuminate to broadly obtuse or rounded, broadly obtuse to subtruncate at the base, the petioles 5–8 mm. long; inflorescence umbelliform, simple to dichotomous, much shorter than the subtending leaves, bearing numerous, fairly showy, white flowers; pedicels 2–4 mm. long, minutely puberulent-papillate; calyx-lobes ovate, acuminate, 1.5–2 mm. long; corolla salverform, glabrous externally, the tube 10–13 mm. long, about 1 mm. in diameter at the base, somewhat

inflated at the insertion of the stamens, constricted at the orifice, the lobes obliquely oblong, oblong-ovoid when convolute in the bud, spreading at anthesis; drupes oblong-ovoid, opalescent, the seed, including the stony layer of the endocarp, 17–20 mm. long.

TYPE LOCALITY: Near Orizaba [Vera Cruz].
DISTRIBUTION: Vera Cruz, Puebla, and Jalisco.

18. ANECHITES Griseb. Fl. Brit. W. Ind. 410. 1861.

Slender lianas. Leaves opposite, not glandular, more or less conspicuously bullate-strigillose above. Inflorescence alternate-racemose, bearing several, medium-sized, white flowers. Calyx 5-parted, the lobes essentially equal, imbricate, squamelliferous at the base within. Corolla salverform, the limb regularly 5-parted, the lobes essentially equal, sinistrorsely contorted. Anthers not connivent, without an enlarged connective. Ovary apocarpous, accompanied by an annular nectary, each carpel containing 2–6 ovules. Fruit follicular, 1-seeded, produced into an elongate sterile beak provided with barbed hairs; seed naked.

Type species, *Apocynum Nerium* Aubl.

1. Anechites Nerium (Aubl.) Urban, Repert. Sp. Nov. 16: 150. 1919.

Apocynum Nerium Aubl. Pl. Guian. Tab. Noms 3. 1775.
Echites lappulacea Lam. Encyc. 2: 341. 1786.
Echites asperuginis Sw. Prodr. 52. 1788.
Echites lappulacea var. *asperuginis* A. DC. in DC. Prodr. 8: 448. 1844.
Anechites lappulacea Miers, Apoc. S. Am. 237. 1878.

Slender liana; stems terete, minutely ferruginous-hirtellous; leaves opposite, rather thinly membranaceous, broadly elliptic to oblong-elliptic or obovate-elliptic, 5–12 cm. long, 1.5–5 cm. broad, narrowly and acutely acuminate, rounded to very obscurely and broadly cordate at the base, sparsely but conspicuously bullate-strigillose above, minutely ferruginous-hirtellous beneath, at least along the midrib, the petioles 10–20 mm. long; inflorescence somewhat longer than the subtending leaves, bearing 6–10 medium-sized white flowers; pedicels 7–8 mm. long; calyx-lobes oblong-lanceolate, acute to acuminate, rather sparsely pilosulous, imbricate; corolla salverform, minutely pilosulous externally, the tube 7–12 mm. long, about 1.25 mm. in diameter at the base, slightly inflated above the insertion of the stamens, the lobes obliquely obovate, 10–13 mm. long, spreading; stamens inserted near the middle of the corolla-tube; follicles narrowly terete, 1-seeded by abortion, prolonged above into a tapering sterile beak with ferruginous barbate hairs.

TYPE LOCALITY: Antilles.
DISTRIBUTION: Cuba, Jamaica, and Puerto Rico; Panama; also in Colombia and Ecuador.
ILLUSTRATIONS: Plumier, Pl. Am. *pl. 26;* E. & P. Nat. Pfl. 4^2: 152. *f. 56, K–N.*

19. LACMELLEA Karst. Linnaea 28: 449. 1857.

Trees. Leaves opposite, not glandular. Inflorescence alternate-axillary, cymose, bearing 3–8 small greenish-white flowers. Calyx 5-parted, the lobes essentially equal, imbricate, squamelliferous within at the base. Corolla salverform, the limb regularly 5-parted, the lobes sinistrorsely contorted. Anthers not connivent, without an enlarged connective, wholly included. Ovary syncarpous, 2-celled, surrounded by a more or less completely adnate, annular nectary, each carpel containing several ovules in two series. Stigma short and thick, essentially glabrous. Style short, about equaling the stigma. Fruit a one-seeded or two-seeded berry.

Type species, *Lacmellea edulis* Karst.

1. Lacmellea edulis Karst. Linnaea 28: 450. 1857.

Tree, 4–5 m. tall; stems terete, relatively stout, minutely puberulent when young, soon becoming glabrate; leaves coriaceous, oblong to oblong-elliptic, 8–12 cm. long, 3–5 cm. broad, abruptly acuminate, broadly obtuse to rounded at the base, lustrous above, glabrous, the petioles 4–6 mm. long; inflorescence 3–8-flowered, scarcely surpassing the petioles; calyx-lobes

ovate, obtuse or rounded, 2–3.5 mm. long, closely imbricate, minutely ciliolate on the margin; corolla tubular-salverform, papillate externally, the tube 4–5 mm. long, about 1.5 mm. in diameter at the base, the lobes oblong-obovate, very obtuse, about as long as the tube; anthers linear, 2–2.5 mm. long, inserted near the base of the corolla-tube, wholly included; berries broadly ovoid, 18–20 mm. long, 9–12 mm. broad, yellow, containing a single seed.

TYPE LOCALITY: Colombia.
DISTRIBUTION: British Honduras; also in Colombia.
ILLUSTRATION: Karst. Fl. Columb. *pl. 152*.

20. ZSCHOKKEA Muell.-Arg. in Mart. Fl. Bras. 6[1]: 20. 1860.

Trees. Leaves opposite, the petioles glandular at the base in most species. Inflorescence alternate-axillary or opposite-axillary, cymose, bearing few to numerous, slender, white flowers of small or medium size. Calyx 5-parted, the lobes cleft nearly to the receptacle, essentially equal, imbricate, without squamellae. Corolla salverform, the tube long and slender in most species, usually slightly gibbous, the limb equally 5-parted, the lobes relatively short, sinistrorsely contorted. Anthers inserted near the orifice of the corolla-tube, not connivent, without an enlarged connective, included. Ovary syncarpous, 2-celled, surrounded by an almost completely adnate annular nectary, each carpel bearing several 2-seriate ovules on an axile binate placenta. Fruit a small berry with one to several seeds.

Type species, *Zschokkea gracilis* Muell.-Arg.

1. Zschokkea panamensis Woodson, Trop. Woods 44: 22. 1935.

Tree, 10–12 m. tall, essentially glabrous throughout; leaves firmly membranaceous to subcoriaceous, oblong-elliptic, 6–10 cm. long, 2–3 cm. broad, rather abruptly acuminate, obtusely cuneate at the base, the petioles 7–9 mm. long; inflorescence opposite-axillary, cymose, bearing 3–9 medium-sized white flowers, much shorter than the subtending leaves; calyx-lobes ovate-subreniform, broadly obtuse to rounded, 1–1.5 mm. long, minutely ciliolate; corolla salverform, the tube somewhat gibbous, 20–25 mm. long, about 1.5 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, the lobes broadly and obliquely oblong-elliptic, 7–8 mm. long, slightly spreading; stamens inserted near the orifice of the corolla-tube, included; berries subglobose, about 4–4.5 cm. in diameter, containing 1–4 seeds.

TYPE LOCALITY: Barro Colorado Island, Canal Zone, Panama.
DISTRIBUTION: Panama.

21. ALLAMANDA L. Mant. 214. 1771.

Orelia Aubl. Pl. Guian. 270. 1775.

Erect or clambering shrubs, frequently lianoid. Leaves quaternate, not glandular. Inflorescence cymose, few-flowered, lateral or pseudoterminal. Calyx 5-parted, the lobes essentially equal, foliaceous, without squamellae. Corolla showy, infundibuliform, the limb regularly 5-parted, the lobes sinistrorsely contorted. Anthers not connivent, without an enlarged connective, wholly included. Ovary syncarpous, 1-celled, containing numerous ovules borne upon two linear parietal placentae, surrounded by a low annular nectary. Fruit a globose or subglobose spiny capsule; seeds numerous, dry, compressed, winged.

Type species, *Allamanda cathartica* L.

1. Allamanda cathartica L. Mant. 214. 1771.

Orelia grandiflora Aubl. Pl. Guian. 271. 1775.
Allamanda grandiflora Lam. Encyc. 4: 601. 1797.

Wholly glabrous to variously pubescent; leaves subcoriaceous to membranaceous, obovate to oblong-lanceolate, 6–12 cm. long, 2.5–6 cm. broad, shortly acuminate, the petioles 2–3 mm. long; inflorescence bearing few to several, showy, yellow flowers; calyx-lobes ovate to ovate-lanceolate, acute, 5–12 mm. long, spreading; corolla infundibuliform, the tube proper 20–35 mm. long, about 2 mm. in diameter at the base, the throat broadly tubular-conic, 30–40 mm. long,

25–35 mm. in diameter, the lobes obliquely obovate, 25–35 mm. long, widely spreading; capsules globose or subglobose, about 4 cm. in diameter, covered with many spines about 1 cm. long.

TYPE LOCALITY: Guiana.
DISTRIBUTION: Probably native to northeastern South America; widely cultivated and escaped in the tropics of both hemispheres.
ILLUSTRATIONS: Bot. Mag. *pl. 338;* Paxt. Mag. 8: *pl. 77;* Mart. Fl. Bras. 6[1]: *pl. 1, f. 2;* E. & P. Nat. Pfl. 4[2]: 124. *f. 49, E–G.*

22. **COUMA** Aubl. Pl. Guian. Suppl. 39. 1775.

Colophora Mart. Repert. Pharm. **35**: 196. 1830.

Large or medium-sized trees. Leaves verticillate, occasionally opposite, not glandular. Inflorescence cymose, lateral, bearing numerous small flowers. Calyx 5-parted, the lobes essentially equal, without squamellae, imbricate. Corolla salverform, small, the limb 5-parted, the lobes equal, sinistrorsely contorted. Anthers not connivent, without an enlarged connective. Ovary syncarpous, 1-celled, bearing numerous ovules upon two linear parietal placentae. Fruit a several-seeded berry.

Type species, *Couma guyanensis* Aubl.

1. **Couma guatemalensis** Standley, Trop. Woods 7: 8. 1926.

Tree of medium size, with very thick reddish bark; leaves ternate, membranaceous, oblong-elliptic, 9–12 cm. long, 4.5–7 cm. broad, shortly and obtusely acuminate, obtuse or rounded at the base, essentially glabrous, or minutely puberulent beneath, the petioles about 1 cm. long; inflorescence about equaling the leaves, bearing numerous, rather small, yellowish flowers; calyx-lobes oblong-lanceolate, obtuse, 2–2.5 mm. long, minutely puberulent; corolla salverform, puberulent-papillate externally, the tube 7–8 mm. long, about 1 mm. in diameter at the base, somewhat inflated at the insertion of the stamens, the lobes oblong-dolabriform, obtuse, 4–6 mm. long, spreading; stamens inserted somewhat above the middle of the corolla-tube; berries subglobose, about 3 cm. in diameter.

TYPE LOCALITY: Near Entre Rios [Izabal], Guatemala.
DISTRIBUTION: British Honduras and northern Guatemala.

23. **TINTINNABULARIA** Woodson, Ann. Mo. Bot. Gard. **23**: 387. 1936.

Lianas. Leaves opposite, glandular at the base of the midrib above, usually bearing an inconspicuous pit in the axils of the lateral veins beneath. Inflorescence alternate-axillary, corymbose-cymose, bearing several showy white or cream-colored flowers. Calyx 5-parted, the lobes subequal, foliaceous, cleft nearly to the receptacle, bearing groups of alternate squamellae within. Corolla infundibuliform, the tube straight, the throat broadly tubular, the lobes 5, equal, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, the connective enlarged, produced into two obtuse basal lobes. Ovary apocarpous, each carpel bearing numerous ovules on an axile binate placenta, surrounded by 5 ovoid nectaries. Stigma fusiform-capitate, 5-maniculate. Fruit unknown, supposedly follicular.

Type species, *Tintinnabularia Mortonii* Woodson.

1. **Tintinnabularia Mortonii** Woodson, Ann. Mo. Bot. Gard. **23**: 389. 1936.

Liana, essentially glabrous throughout; leaves firmly membranaceous, oblong-elliptic, 9–10 cm. long, 3–3.5 cm. broad, obtusely caudate-acuminate, obtuse at the base, the petioles 7–10 mm. long; inflorescence alternate-axillary, corymbose, about three times as long as the subtending leaves, bearing numerous showy white or cream-colored flowers; pedicels 2 cm. long; calyx-lobes oblong-elliptic, acuminate, 12–13 mm. long, somewhat foliaceous, spreading; corolla infundibuliform, puberulent-papillate externally, the tube proper 8–9 mm. long, about

3 mm. in diameter at the base, the throat broadly tubular, 30–35 mm. long, about 8 mm. in diameter at the orifice, the lobes obliquely obovate, obtusish, 9–10 mm. long, slightly spreading; anthers with a linear, pilosulous, apical appendage, wholly included; fruit unknown.

TYPE LOCALITY: Alta Verapaz, Guatemala.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Ann. Mo. Bot. Gard. 23: *pl.* 7.

24. ALLOMARKGRAFIA Woodson, Ann. Mo. Bot. Gard. 19: 45. 1932.

Lianas. Leaves opposite, glandular at the base of the midrib above. Inflorescence alternate-axillary, predominantly compound-cymose, bearing few to numerous conspicuous flowers. Calyx 5-parted, cleft nearly to the receptacle, the lobes subequal, bearing numerous squamellae within. Corolla infundibuliform, the limb regularly 5-parted, the lobes dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, obtusely 2-lobed connective, without apical linear appendages. Ovary apocarpous, each carpel containing numerous ovules, surrounded by 5 separate or somewhat concrescent nectaries; stigma fusiform. Fruit apocarpous, follicular; seeds numerous, truncate, comose.

Type species, *Echites ovalis* Markgraf.

Corolla definitely infundibuliform, with a conspicuously inflated throat; inflorescence repeatedly branched.
  Corolla 3–3.5 cm. long, the throat about as long as broad; inflorescence very congested. — 1. *A. plumeriaeflora.*
  Corolla 5.5–6.5 cm. long, the throat much longer than broad; inflorescence lax. — 2. *A. Brenesiana.*
Corolla subtubular-infundibuliform, the throat not conspicuously inflated; inflorescence apparently simple. — 3. *A. subtubulosa.*

1. Allomarkgrafia plumeriaeflora Woodson, Ann. Mo. Bot. Gard. 20: 627. 1933.

Stout liana, wholly glabrous; leaves coriaceous, oblong-elliptic, 14–18 cm. long, 5–5.5 cm. broad, shortly acuminate, broadly obtuse or rounded at the base, the petioles 15–17 mm. long; inflorescence repeatedly branched, very congested, much shorter than the subtending leaves, bearing numerous conspicuous cream-colored flowers; pedicels 7–8 mm. long; calyx-lobes broadly ovate, obtuse, 3–4 mm. long; corolla infundibuliform, the tube proper 10–12 mm. long, about 2.5 mm. in diameter at the base, the throat broadly conic, 7–8 mm. long, about 7 mm. in diameter at the orifice, the lobes broadly dolabriform, obtuse, 12–15 mm. long, spreading; follicles unknown.

TYPE LOCALITY: El Umbo, Boyaca, Colombia; alt. 960 meters.
DISTRIBUTION: Costa Rica; also in Colombia.

2. Allomarkgrafia Brenesiana Woodson, Ann. Mo. Bot. Gard. 24: 15. 1937.

Stout liana, wholly glabrous; leaves subcoriaceous, oblong-elliptic, 8–12 cm. long, 2–3.5 cm. broad, shortly subcaudate-acuminate, broadly obtuse to rounded at the base, the petioles 8–10 mm. long; inflorescence repeatedly branched, relatively lax, equaling or surpassing the subtending leaves, bearing numerous conspicuous white or cream-colored flowers; pedicels 12–15 mm. long; calyx-lobes ovate to ovate-lanceolate, acute, 2–2.5 mm. long; corolla infundibuliform, the tube proper 13–16 mm. long, about 1.5 mm. in diameter at the base, the throat rather narrowly conic, 20–25 mm. long, about 8 mm. in diameter at the orifice, the lobes obliquely obovate, 20–25 mm. long; follicles unknown.

TYPE LOCALITY: Between La Balsa and Cataractas de San Ramón, Alajuela, Costa Rica; alt. 850 meters.
DISTRIBUTION: Known only from the vicinity of the type locality.

3. **Allomarkgrafia subtubulosa** Woodson, Ann. Mo. Bot. Gard. **24**: 16. 1937.

Stout liana, wholly glabrous; leaves coriaceous to subcoriaceous, broadly oval, 8–12 cm. long, 3–5 cm. broad, broadly obtuse, broadly obtuse to rounded at the base, the petioles 8–12 mm. long; inflorescence evidently simple, about equaling the subtending leaves or somewhat shorter, bearing numerous, rather conspicuous, white flowers; pedicels 10–12 mm. long; calyx-lobes ovate, broadly acute to rounded, 2–2.5 mm. long, minutely papillate; corolla subtubular-infundibuliform, only slightly inflated above the insertion of the stamens, 20–25 mm. long, about 2 mm. in diameter at the base, the orifice about 2.5 mm. in diameter, the lobes obliquely obovate, 17–20 mm. long, spreading; stamens inserted near the middle of the corolla-tube; follicles unknown.

TYPE LOCALITY: Hills near San Ramón, Alajuela, Costa Rica; alt. 975–1000 meters.
DISTRIBUTION: Known only from the type locality.

25. **MESECHITES** Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 150. 1860.

Lianas. Leaves opposite, bearing 1–4 glandular emergences at the base of the midrib above. Inflorescence alternate-axillary, bostrychoid, the axis dichotomously or rarely trichotomously divided, often very obscurely so, bearing several or rarely few, congested, frequently conspicuous flowers of medium size. Calyx 5-parted nearly to the receptacle, the lobes subequal, imbricate, bearing several alternate or indefinitely distributed squamellae within. Corolla salverform, the limb regularly 5-parted, the lobes dextrorsely contorted, reflexed. Anthers connivent and agglutinated to the stigma, with an enlarged, obtusely 2-lobed connective, without linear apical appendages. Ovary apocarpous, each carpel containing numerous ovules, surrounded by 5 separate or somewhat concrescent nectaries; stigma fusiform-umbraculiform. Fruit apocarpous, follicular; seeds numerous, truncate, comose.

Type species, *Echites Mansoana* A. DC.

Corolla greenish-white or yellowish, flushed with red or purple; foliar glands 1–4, laminate or irregularly pectinate, clustered concentrically; southern Mexico and Central America. 1. *M. trifida.*
Corolla cream-colored or pink; foliar glands 2, fusiform, clustered radially; Cuba and Hispaniola.
  Inflorescence lateral only, conspicuously compound; Hispaniola.
    Corolla-tube 10–15 mm. long; leaves ovate to ovate-lanceolate. 2. *M. repens.*
    Corolla-tube 4–6 mm. long; leaves narrowly elliptic to linear-lanceolate. 3. *M. angustifolia.*
  Inflorescence both lateral and pseudo-terminal, obscurely compound; Cuba.
    Corolla bright-pink, the tube 20–40 mm. long. 4. *M. rosea.*
    Corolla cream-colored, the tube 2–4 mm. long. 5. *M. minima.*

1. **Mesechites trifida** (Jacq.) Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 151. 1860.

Echites trifida Jacq. Enum. Pl. Carib. 13. 1760.
Echites japurensis Stadelm. Flora **24**: Beibl. **1**: 19. 1841.
Echites tubulosa Benth. Jour. Bot. Hook. **3**: 249. 1841.
Echites surinamensis Miq. Stirp. Surin. 155. 1851.
Echites disadena Miq. Stirp. Surin. 156. 1851.
Echites chlorantha Schlecht. Linnaea **26**: 663. 1855.
Mesechites japurensis Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 152. 1860.
Mesechites surinamensis Muell.-Arg. Linnaea **30**: 454. 1860.
Mesechites disadena Muell.-Arg. Linnaea **30**: 454. 1860.
Echites pallida Miers, Apoc. S. Am. 195. 1878.
Echites rigida Rusby, Mem. N. Y. Bot. Gard. **7**: 325. 1927.

Fruticose or suffruticose liana, wholly glabrous or essentially so; leaves firmly membranaceous, ovate to ovate-oblong, or occasionally oblong-lanceolate, 5–12 cm. long, 2–8 cm. broad, rather abruptly acuminate to obtuse, usually mucronulate, obtuse to rounded, and usually somewhat cordate at the base, the petioles 5–30 mm. long; inflorescence axillary, or rarely subterminal, about half as long as the leaves, bearing several greenish-white or yellowish, purplish-flushed flowers; pedicels 5–10 mm. long; calyx-lobes broadly oblong, obtuse or rounded,

3–5 mm. long; corolla salverform, the tube 15–25 mm. long, about 1.5 mm. in diameter at the base, the lobes obliquely obovate-oblong, 7.5–15 mm. long, sharply reflexed; follicles 15–40 cm. long, continuous or essentially so, narrowly terete.

TYPE LOCALITY: [Cartagena, Colombia.]
DISTRIBUTION: Campeche, British Honduras, Guatemala, and Honduras; Costa Rica and Panama; also widely distributed in northern and Amazonian South America.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 24;* Jacq. Sel. Stirp. Pict. *pl. 31.*

2. **Mesechites repens** (Jacq.) Miers, Apoc. S. Am. 229. 1878.

Echites repens Jacq. Enum. Pl. Carib. 13. 1760.
Mesechites lanceolata Miers, Apoc. S. Am. 230. 1878.

Glabrous suffrutescent liana; leaves membranaceous, ovate to ovate-lanceolate, 1.5–6 cm. long, 0.3–2.5 cm. broad, shortly acuminate to obtuse and usually mucronulate, rounded and very obscurely cordate at the base, the petioles 1–6 mm. long; inflorescence axillary, much surpassing the leaves, conspicuously dichotomous, bearing several to numerous, pale-pink or cream-colored flowers; pedicels 1–3 mm. long; calyx-lobes narrowly lanceolate, 1.5–2 mm. long; corolla salverform, the tube 10–15 mm. long, about 1 mm. in diameter at the base, the lobes broadly obovate-dolabriform, 7–9 mm. long; follicles 15–20 cm. long, conspicuously moniliform.

TYPE LOCALITY: Near Cape Haïtien, Haïti.
DISTRIBUTION: Hispaniola.
ILLUSTRATIONS: Plumier, Pl. Am. *pl. 27, f. 1;* Jacq. Sel. Stirp. Am. *pl. 28.*

3. **Mesechites angustifolia** (Poir.) Miers, Apoc. S. Am. 230. 1878.

Echites angustifolia Poir. in Lam. Encyc. Suppl. 2: 537. 1812.
Echites linearifolia Hamilt. Prodr. 31. 1825.
? *Echites concolor* Hamilt. Prodr. 31. 1825.
Amblyanthera angustifolia Muell.-Arg. Linnaea **30**: 430. 1860.
Mesechites linearifolia Miers, Apoc. S. Am. 230. 1878.
Echites breviflora Urban, Symb. Ant. **5**: 464. 1908.

Suffrutescent liana, glabrous throughout; leaves firmly membranaceous, narrowly elliptic-lanceolate to linear-lanceolate, 3–10 cm. long, 0.3–2.5 cm. broad, acuminate to subcaudate-acuminate, obtuse or rounded and obscurely cordate at the base, the petioles 2–5 mm. long; inflorescence axillary, equaling or somewhat surpassing the leaves, conspicuously dichotomous, bearing few to several, small, cream-colored flowers; pedicels 5–8 mm. long; calyx-lobes narrowly lance-triangular, about 1 mm. long; corolla salverform, the tube 4–6 mm. long, about 1 mm. in diameter at the base, the lobes obliquely obovate, 4–5 mm. long; follicles conspicuously moniliform, 10–20 cm. long.

TYPE LOCALITY: Haïti.
DISTRIBUTION: Hispaniola.

4. **Mesechites rosea** (A. DC.) Miers, Apoc. S. Am. 232. 1878.

Echites myrtifolia R. & S. Syst. Veg. **4**: 795. 1819. Not *E. myrtifolia* Poir. 1812.
Echites rosea A. DC. in DC. Prodr. **8**: 450. 1844.
Mesechites myrtifolia Muell.-Arg. Linnaea **30**: 445. 1860.

Glabrous suffrutescent liana; leaves subcoriaceous, ovate to oval or oblong, or infrequently lanceolate, 7.5–30 mm. long, 2.5–20 mm. wide, abruptly acute to obtuse and usually mucronulate, obtuse to rounded and obscurely cordate at the base, the petioles 1–2 mm. long; inflorescence axillary to subterminal, about as long as or shorter than the leaves, very obscurely compound, bearing 1–5 bright-pink flowers; pedicels 3–6 mm. long; calyx-lobes ovate-lanceolate, acute, 2–3 mm. long; corolla salverform, the tube 20–40 mm. long, about 3 mm. in diameter at the base, somewhat enlarged at the insertion of the stamens, the lobes obliquely obovate-dolabriform, 15–25 mm. long; follicles 15–45 cm. long, conspicuously moniliform.

TYPE LOCALITY: [Havana,] Cuba.
DISTRIBUTION: Cuba.

5. **Mesechites minima** (Britton & Wilson) Woodson, Ann. Mo. Bot. Gard. **19**: 386. 1932.

Echites minima Britton & Wilson; Britton, Mem. Torrey Club **16**: 94. 1920.

Suffrutescent liana, wholly glabrous; leaves subcoriaceous, oblong to ovate-oblong, 4–20 mm. long, 2–6 mm. broad, obtuse to rounded, or rarely acute, and mucronulate, rounded and very obscurely cordate at the base, the petioles about 1 mm. long; inflorescences both lateral and subterminal, somewhat longer than the leaves, very obscurely compound, bearing 1–5 small cream-colored flowers; pedicels 1–3 mm. long; calyx-lobes narrowly triangular, somewhat less than 1 mm. long; corolla salverform, the tube 2–4 mm. long, about 1 mm. in diameter at the base, the lobes obliquely obovate, 2 mm. long; follicles unknown.

TYPE LOCALITY: Southeast of Holguin, Oriente, Cuba.
DISTRIBUTION: Eastern Cuba.

26. **MANDEVILLA** Lindl. Bot. Reg. **26**: *pl. 7*. 1840.

Exothostemon G. Don, Gen. Hist. **4**: 82, in part. 1838.
Laseguea A. DC. in DC. Prodr. **8**: 481. 1844.
Dipladenia A. DC. in DC. Prodr. **8**: 481. 1844.
Heterothrix Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 133. 1860.
Amblyanthera Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 141. 1860.
Eriadenia Miers, Apoc. S. Am. 117. 1878.
Micradenia Miers, Apoc. S. Am. 158. 1878.
Homaladenia Miers, Apoc. S. Am. 164. 1878.
Angadenia Miers, Apoc. S. Am. 173, in part. 1878.
Temnadenia Miers, Apoc. S. Am. 207, in part. 1878.

Fruticose or suffruticose plants, or suffrutescent lianas, or infrequently undershrubs. Leaves opposite, or rarely verticillate, the upper surface bearing several glands clustered at the base or sparsely distributed along the midrib, rarely eglandular. Inflorescence predominantly alternate-axillary, rarely terminal or pseudoterminal, racemose, or rarely very obscurely compound. Calyx 5-parted, cleft nearly to the receptacle, the lobes essentially equal, usually not strongly imbricate, bearing variously distributed squamellae within. Corolla salverform, infundibuliform, or tubular, the limb equally 5-parted, the lobes dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, obtusely 2-lobed or truncate connective. Ovary apocarpous, each carpel containing numerous ovules, surrounded by 5, or rarely 2, separate or variously concrescent nectaries; stigma conspicuously umbraculiform. Follicles terete, acuminate, separate, continuous to moniliform; seeds numerous, truncate, comose.

Type species, *Mandevilla suaveolens* Lindl.

Corolla-tube straight, not gibbous or arcuate; calycine squamellae usually more numerous than the calyx-lobes, or alternate with them when of the same number; upper surface of the leaves glandular at the base of the midrib, or very rarely eglandular.
  Corolla salverform to tubular-salverform.
    Nectaries equaling or somewhat surpassing the ovary; lianas of Mexico and Central America.
      Corolla strictly salverform, the limb conspicuous and definitely reflexed or spreading.
        Stamens inserted near the orifice of the corolla-tube; anthers with truncate auricles.
          Calyx-lobes uniform or essentially so, relatively inconspicuous, much shorter than the corolla-tube.
            Inflorescence not secund; leaves lanceolate to oblong-lanceolate.
              Corolla-lobes obovate; leaves pubescent, at least beneath. 1. *M. tubiflora.*
              Corolla-lobes oblong-lanceolate; leaves glabrous. 2. *M. acutiloba.*
            Inflorescence secund; leaves broadly ovate to ovate-oblong. 3. *M. Donnell-Smithii.*
          Calyx-lobes unequal and very conspicuous, about half as long as the corolla-tube. 4. *M. platydactyla.*
        Stamens inserted about the middle of the corolla-tube; anthers with rounded auricles.
          Inflorescence neither secund nor subscorpioid; leaves lanceolate, glabrous. 5. *M. Rosana.*
          Inflorescence secund and subscorpioid; leaves ovate to ovate-lanceolate, densely tomentulose beneath. 6. *M. scorpioidea.*

Corolla tubular-salverform, the limb relatively inconspicuous, erect or nearly so.
Inflorescence typically racemose, about as long as the leaves or longer; calyx-lobes 2–3 mm. long, acute to broadly acuminate. 7. *M. Syrinx.*
Inflorescence corymbiform or subumbelliform, shorter than the subtending leaves; calyx-lobes 4–6 mm. long, long-acuminate to subulate. 8. *M. sertuligera.*
Nectaries shorter than the ovary (or about equaling them in *M. apocynifolia*); low twiners or suffrutescent herbs of Mexico or Jamaica.
Racemes subcorymbiform; nectaries shorter than the ovary.
Plants twining or trailing, or occasionally suberect in *M. Karwinskii;* stamens inserted about the middle of the corolla-tube.
Corolla-tube 4–6 mm. long; follicles moniliform; plants twining, or infrequently trailing; leaves elliptic; Jamaica and Yucatan. 9. *M. torosa.*
Corolla-tube 7–9 mm. long; follicles essentially continuous; plants trailing or suberect, or infrequently somewhat twining; leaves oblanceolate or narrowly spatulate; Mexico. 10. *M. Karwinskii.*
Plants erect or essentially so; stamens inserted above the middle of the corolla-tube.
Corolla-lobes shorter than the tube; leaves 6–15 cm. long, minutely and generally pilose beneath. 11. *M. foliosa.*
Corolla-lobes about as long as the tube; leaves 2–5 cm. long, minutely puberulent along the midrib beneath. 12. *M. mexicana.*
Racemes relatively elongate; nectaries about as long as the ovary. 13. *M. apocynifolia.*
Corolla infundibuliform.
Plants scandent; inflorescence apparently always lateral; nectaries 5.
Nectaries about as long as the ovary or somewhat longer; Mexico.
Corolla 20–30 mm. long, the tube proper about as long as the throat, manifestly constricted at the insertion of the stamens. 14. *M. oaxacana.*
Corolla 10–16 mm. long, the tube proper much shorter than the throat, not manifestly constricted at the insertion of the stamens.
Leaves broadly cordate, 8–12 cm. long; inflorescence secund. 15. *M. convolvulacea.*
Leaves, at least the upper, not cordate, 2–5 cm. long; inflorescence not secund. 16. *M. Andrieuxii.*
Nectaries shorter than the ovary; Central America. 17. *M. veraguasensis.*
Plants suffrutescent, the tips of the stems sometimes twining; inflorescence terminal or subterminal; nectaries 2. 18. *M. Pittieri.*
Corolla-tube more or less gibbous or arcuate; squamellae as many as the calyx-lobes and opposite them, frequently deeply lacerate; upper surface of the leaves sparsely glandular along the midrib.
Corolla salverform.
Bracts scarious, 1–5 mm. long. 19. *M. subsagittata.*
Bracts foliaceous or petaloid, 10–35 mm. long. 20. *M. villosa.*
Corolla infundibuliform; bracts foliaceous or petaloid. 21. *M. hirsuta.*

NOTE: In addition to the foregoing, *M. Bridgesii* (Muell.-Arg.) Woodson, indigenous to southern Bolivia and northern Argentina, is frequently cultivated. It keys to the neighborhood of *M. veraguasensis* in the preceding key, but has white or cream-colored corollas essentially glabrous externally and larger, somewhat foliaceous calyx-lobes.

1. **Mandevilla tubiflora** (Mart. & Gal.) Woodson, Ann. Mo. Bot. Gard. **19**: 52. 1932.

Echites tubiflora Mart. & Gal. Bull. Acad. Brux. **11**[1]: 358. 1844.
Amblyanthera tubiflora Muell.-Arg. Linnaea **30**: 423. 1860.
Echites cobanensis Donn. Smith, Bot. Gaz. **40**: 6. 1905.

Suffruticose liana; leaves membranaceous, lanceolate to oblong-lanceolate, 4–10 cm. long, 0.75–4 cm. broad, acuminate, obscurely cordate at the base, minutely puberulent to glabrate above, densely tomentulose beneath, the petioles 4–10 mm. long; racemes alternate-axillary, about as long as the leaves, bearing 8–20 yellowish flowers; pedicels 7.5–10 mm. long; calyx-lobes ovate to ovate-lanceolate, acute to acuminate, 1–2 mm. long, minutely puberulent to glabrate, the squamellae in alternate groups of 5 or 6; corolla salverform, glabrous externally, the

tube 10–15 mm. long, about 1 mm. in diameter at the base, the lobes obliquely obovate, 2.5–3.5 mm. long; follicles unknown.

TYPE LOCALITY: Mirador, Vera Cruz; alt. 900 meters.
DISTRIBUTION: Vera Cruz to Oaxaca and Guatemala.

2. **Mandevilla acutiloba** (A. DC.) Woodson, Ann. Mo. Bot. Gard. **19**: 54. 1932.

Echites acutiloba A. DC. in DC. Prodr. **8**: 451. 1844.
Amblyanthera acutiloba Muell.-Arg. Linnaea **30**: 426. 1860.

Suffruticose liana, glabrous or essentially so throughout; leaves membranaceous, lanceolate to broadly elliptic-lanceolate, 5–8 cm. long, 1.5–3 cm. broad, acuminate, obscurely cordate at the base; inflorescence alternate-axillary, about as long as the leaves, bearing 7–12 yellowish flowers; pedicels 17.5–20 mm. long; calyx-lobes lanceolate to oblong-lanceolate, acuminate, 2.5–5 mm. long, glabrous, the squamellae in alternate groups of 4–6; corolla salverform, glabrous externally, the tube 15–17.5 mm. long, about 2 mm. in diameter at the base, the lobes obliquely oblong-lanceolate, acuminate, about 5 mm. long, spreading; follicles unknown.

TYPE LOCALITY: Peru (?).
DISTRIBUTION: Chiapas.

3. **Mandevilla Donnell-Smithii** Woodson, Ann. Mo. Bot. Gard. **19**: 54. 1932.

Suffruticose liana; leaves membranaceous, ovate to ovate-oblong, 4–10 cm. long, 2–8 cm. broad, acute to acuminate, or rarely somewhat obtuse, abruptly rounded and cordate at the base, hirtellous above, densely tomentulose beneath, the petioles 7.5–25 mm. long; racemes alternate-axillary, secund, equaling or somewhat surpassing the leaves, bearing 10–25 yellowish flowers; pedicels 5–7.5 mm. long; calyx-lobes ovate to ovate-lanceolate, acute to acuminate, 3–4 mm. long, minutely puberulent, the squamellae very numerous; corolla salverform, glabrous externally, the tube 12–15 mm. long, about 1.5 mm. in diameter at the base, the lobes obliquely obovate, 2.5–4 mm. long, spreading; follicles unknown.

TYPE LOCALITY: Cerro Gordo, Santa Rosa, Guatemala; alt. 1050 meters.
DISTRIBUTION: Guatemala.

4. **Mandevilla platydactyla** Woodson, Ann. Mo. Bot. Gard. **19**: 55. 1932.

Suffruticose liana; leaves membranaceous, ovate to oblong-obovate, 5–10 cm. long, 2–5 cm. broad, acute to acuminate, rather obscurely cordate at the base, densely hirtellous to glabrate above, tomentose beneath, the petioles 2–4 mm. long; racemes alternate-axillary or occasionally subterminal, simple, somewhat shorter than the leaves, bearing 10–25 yellowish flowers; pedicels 8–10 mm. long; calyx-lobes ovate-oblong, acute to obtuse, 6–8 mm. long, minutely tomentulose to glabrate, the squamellae very numerous; corolla salverform, the tube 12–15 mm. long, about 2.5 mm. in diameter at the base, the lobes obliquely obovate, 4–5 mm. long, spreading; follicles continuous, about 25 cm. long, glabrate.

TYPE LOCALITY: Tolaga, Oaxaca.
DISTRIBUTION: Oaxaca.

5. **Mandevilla Rosana** (Donn. Smith) Woodson, Ann. Mo. Bot. Gard. **19**: 56. 1932.

Echites Rosana Donn. Smith, Bot. Gaz. **40**: 6. 1905.

Suffruticose liana, glabrous or essentially so; leaves firmly membranaceous, lanceolate to narrowly ovate-lanceolate, 6–12 cm. long, 1.5–3 cm. broad, acuminate, abruptly and obscurely cordate at the base, the petioles 3–5 mm. long; racemes alternate-axillary or subterminal, simple, equaling or somewhat surpassing the leaves, bearing 6–15 yellowish flowers; pedicels

7–10 mm. long; calyx-lobes ovate-lanceolate, 3–4 mm. long, the squamellae in alternate groups of 5 or 6; corolla salverform, glabrous externally, the tube 14–16 mm. long, about 2 mm. in diameter at the base, the lobes obliquely obovate-oblong, 6–7 mm. long, spreading; stamens inserted about the middle of the corolla-tube, the anthers with rounded auricles; follicles unknown.

TYPE LOCALITY: Buena Vista, Santa Rosa, Guatemala; alt. 1000 meters.
DISTRIBUTION: Known only from the type locality.

6. **Mandevilla scorpioidea** Woodson, Ann. Mo. Bot. Gard. **19**: 56. 1932.

Suffruticose liana; leaves membranaceous, ovate to ovate-lanceolate, 4–14 cm. long, 1.5–7 cm. broad, acuminate, abruptly and narrowly cordate at the base, hirtellous or hispidulous to glabrate above, densely tomentulose beneath, the petioles 4–10 mm. long; inflorescence racemose, secund, simple, alternate-axillary, equaling or somewhat surpassing the leaves, bearing 15–40 yellowish flowers of medium size; pedicels 7.5–10 mm. long; calyx-lobes lanceolate, acuminate, 4 mm. long, sparsely hirtellous to glabrate, the squamellae numerous, indefinitely distributed; corolla salverform, glabrous externally, the tube 15–20 mm. long, about 1 mm. in diameter at the base, the lobes obliquely obovate, 4–5 mm. long, spreading; stamens inserted about the middle of the corolla-tube, the anthers 4 mm. long, with rounded auricles; follicles unknown.

TYPE LOCALITY: Cerro del Boqueron, Chiapas.
DISTRIBUTION: Extreme southern Mexico and adjacent Guatemala.

7. **Mandevilla Syrinx** Woodson, Ann. Mo. Bot. Gard. **19**: 53. 1932.

Suffruticose liana; leaves elliptic-ovate to oblong-lanceolate, 5–14 cm. long, 1.5–8 cm. broad, shortly acuminate, narrowly cordate at the base, minutely hispidulous to glabrate above, finely tomentulose or puberulent, or rarely glabrate beneath, the petioles 5–10 mm. long; racemes simple, alternate-axillary, equaling or slightly surpassing the leaves, bearing several to numerous congested yellowish flowers of medium size; pedicels 3–4 mm. long; calyx-lobes ovate-triangular, acute to broadly acuminate, 2–3 mm. long, scarious, glabrous or minutely puberulent-papillate, the squamellae numerous, indefinitely distributed; corolla tubular-salverform, glabrous externally, the tube 5–7.5 mm. long, about 3 mm. in diameter at the base, the lobes obliquely ovate, about 4 mm. long, erect or ascending; anthers 4 mm. long, with truncate auricles; follicles falcate or somewhat divaricate, continuous, 15–25 cm. long, glabrous; seeds about 7.5 mm. long, the coma about 1.5 cm. long.

TYPE LOCALITY: Barranca of Tequila, Jalisco.
DISTRIBUTION: Guanajuato, Jalisco, and Morelos.

8. **Mandevilla sertuligera** Woodson, Ann. Mo. Bot. Gard. **19**: 383. 1932.

Suffruticose liana; leaves membranaceous, elliptic-ovate, 6–8 cm. long, 3–3.5 cm. broad, abruptly acuminate, obscurely cordate at the base, hispidulous to strigillose above, densely lanate-tomentulose beneath, the petioles 7.5–12.5 mm. long; racemes simple, alternate-axillary, infrequently subterminal, corymbiform to subumbelliform, about half as long as the leaves, bearing several to numerous congested yellowish flowers of medium size; pedicels 3–4 mm. long; calyx-lobes narrowly lanceolate, acuminate, or occasionally subulate, 4–6 mm. long, minutely pilosulous, the squamellae numerous, indefinitely distributed; corolla tubular-salverform, glabrous externally, the tube 7–8 mm. long, about 3 mm. in diameter at the base, the lobes obliquely obovate, 3–4 mm. long, erect or nearly so; anthers 4 mm. long, with obtuse auricles; follicles unknown.

TYPE LOCALITY: Near Coru station, Michoacan; alt. 1800 meters.
DISTRIBUTION: Michoacan, Morelos, and Oaxaca.

9. **Mandevilla torosa** (Jacq.) Woodson, Ann. Mo. Bot. Gard. **19**: 64. 1932.

Echites torosa Jacq. Enum. Pl. Carib. 13. 1760.
Echites torulosa L. Sp. Pl. ed. 2. 307. 1762.
Echites torosa var. *Brownei* A. DC. in DC. Prodr. **8**: 449. 1844.
Amblyanthera torosa Muell.-Arg. Linnaea **30**: 446. 1860.
Echites Brownei Muell.-Arg. Linnaea **30**: 446. 1860.
Mesechites torulosa Miers, Apoc. S. Am. 229. 1878.
Mesechites Brownei Miers, Apoc. S. Am. 232. 1878.

Suffrutescent twiner, occasionally somewhat trailing; leaves firmly membranaceous, elliptic, 2–7 cm. long, 0.7–3 cm. broad, acute to acuminate, gradually narrowed and obscurely cordate at the base, usually glabrous, rarely minutely puberulent, the petioles 1.5–4 mm. long; racemes alternate-axillary, corymbiform or subcorymbiform, about as long as the leaves, bearing 3–12, white or cream-colored flowers of medium size; pedicels 7–10 mm. long; calyx-lobes lanceolate-triangular, acuminate, 1.5–2 mm. long, glabrous, the squamellae in alternate groups of 4 or 5; corolla salverform, glabrous externally, the tube 4–6 mm. long, about 1 mm. in diameter at the base, the lobes obliquely oblong-obovate, 4–5 mm. long, spreading; stamens inserted about the middle of the corolla-tube, the anthers 2 mm. long; nectaries about half as long as the ovary; follicles conspicuously moniliform, usually somewhat falcate, 9–20 cm. long, glabrous or rarely minutely puberulent-papillate.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Jamaica; Yucatan.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 27;* Jacq. Sel. Stirp. Pict. *pl. 34;* P. Br. Hist. Jam. *pl. 16;* Lam. Tab. Encyc. *pl. 174, f. 1.*

10. **Mandevilla Karwinskii** (Muell.-Arg.) Hemsl. Biol. Centr. Am. Bot. **2**: 316. 1881.

Amblyanthera Karwinskii Muell.-Arg. Linnaea **30**: 426. 1860.
Echites Karwinskii Miers, Apoc. S. Am. 206. 1878.
Echites Coulteri S. Wats. Proc. Am. Acad. **18**: 113. 1883.

Suberect or trailing suffrutescent herb, infrequently somewhat twining; leaves membranaceous, oblanceolate to narrowly spatulate, 1.5–5 cm. long, 0.5–2 cm. broad, obtuse to broadly acute, gradually narrowed and somewhat decurrent, or rarely obscurely cordate at the base, finely puberulent, especially beneath, the petioles 2–3 mm. long; racemes alternate-axillary, subcorymbiform, bearing 3–7 white or cream-colored flowers; pedicels 4–6 mm. long; calyx-lobes lanceolate-triangular, acute to acuminate, 3–4 mm. long, scarious, glabrous, the squamellae in alternate groups of 4–6; corolla salverform, glabrous externally, the tube 7–9 mm. long, about 1 mm. in diameter at the base, the lobes obliquely obovate, 7–8 mm. long, spreading; stamens inserted about the middle of the corolla-tube, the anthers 2 mm. long; nectaries about half as long as the ovary; follicles falcate or somewhat divaricate, essentially continuous, 6–10 cm. long, glabrous or rarely somewhat puberulent.

TYPE LOCALITY: Southern Mexico.
DISTRIBUTION: Coahuila, San Luis Potosí, and Hidalgo.

11. **Mandevilla foliosa** (Muell.-Arg.) Hemsl. Biol. Centr. Am. Bot. **2**: 316. 1881.

Amblyanthera foliosa Muell.-Arg. Linnaea **30**: 427. 1860.
Laseguea foliosa Miers, Apoc. S. Am. 253. 1878.
Trachelospermum stans A. Gray, Proc. Am. Acad. **21**: 394. 1886.
Secondatia stans Standley, Contr. U. S. Nat. Herb. **23**: 1165. 1924.

Erect or ascending suffrutescent herb; leaves membranaceous, ovate-elliptic, 6–15 cm. long, 2–7 cm. broad, acute to acuminate, gradually narrowed and obscurely cordate at the base, minutely pilose to glabrate above, minutely and generally pilose beneath, the petioles 5–10 mm. long; inflorescence alternate-axillary, simple, subcorymbiform, usually much shorter than the leaves, bearing 3–12 white or cream-colored flowers; pedicels 5–10 mm. long; calyx-lobes lanceolate-triangular, acuminate, 4–6 mm. long, glabrous; corolla salverform, glabrous exter-

nally, the tube 10–15 mm. long, about 1 mm. in diameter at the base, the lobes obliquely oblong-obovate, 7.5–10 mm. long, spreading; stamens inserted above the middle of the corolla-tube, the anthers 3 mm. long; nectaries somewhat shorter than the ovary; follicles falcate, articulate or somewhat moniliform, 8–12 cm. long, minutely puberulent to glabrate.

TYPE LOCALITY: Near Mexico, Federal District.
DISTRIBUTION: Chihuahua, Sinaloa, and Durango; Jalisco and Michoacan to Queretaro and Morelos.
ILLUSTRATION: Ramírez, Estud. Hist. Nat. *pl. 25.*

12. **Mandevilla mexicana** (Muell.-Arg.) Woodson, Ann. Mo. Bot. Gard. **19**: 65. 1932.

Amblyanthera mexicana Muell.-Arg. Linnaea **30**: 424. 1860.
Echites mexicana Miers, Apoc. S. Am. 205. 1878.
Echites Smithii Greenman, Proc. Am. Acad. **40**: 29. 1904.

Erect or ascending suffrutescent herb; leaves membranaceous, ovate-oblong to ovate-lanceolate, 2–5 cm. long, 0.5–2 cm. broad, acute to obtusish, rather gradually narrowed and obscurely cordate at the base, glabrous above, minutely puberulent along the midrib beneath, the petioles 10–15 mm. long; racemes alternate-axillary, simple, subcorymbiform, about half as long as the leaves, bearing 3–7 white or cream-colored flowers; pedicels 5–7 mm. long; calyx-lobes lanceolate-triangular, acuminate, 4–6 mm. long, glabrous, the squamellae in alternate groups of 4–6; corolla salverform, glabrous externally, the tube 10 mm. long, about 1 mm. in diameter at the base, the lobes obliquely obovate, about as long as the tube, spreading; stamens inserted above the middle of the corolla-tube, the anthers 3 mm. long; nectaries about half as long as the ovary; follicles falcate, inconspicuously articulate, 8–10 cm. long, glabrous.

TYPE LOCALITY: Near "Victoria" [Mexico].
DISTRIBUTION: Michoacan and Oaxaca.

13. **Mandevilla apocynifolia** (A. Gray) Woodson, Ann. Mo. Bot. Gard. **19**: 65. 1932.

Echites apocynifolia A. Gray, Proc. Am. Acad. **22**: 435. 1887.

Erect or ascending suffrutescent herb; leaves membranaceous, ovate-oblong to ovate-lanceolate, 4–7 cm. long, 1.5–2 cm. broad, acute to acuminate, rather abruptly and obscurely cordate at the base, glabrous above, minutely puberulent beneath, particularly along the veins, the petioles 2–3 mm. long; inflorescence alternate-axillary, simply racemose, somewhat longer than the leaves, bearing 3–10 white or pale-cream-colored flowers; pedicels 10–12.5 mm. long; calyx-lobes lanceolate-triangular, acuminate, 4–5 mm. long, glabrous, the squamellae numerous and indefinitely distributed; corolla salverform, glabrous externally, the tube 10–12.5 mm. long, about 1.5 mm. in diameter at the base, the lobes obliquely obovate, about as long as the tube, spreading; stamens inserted about the middle of the corolla-tube, the anthers 3 mm. long; nectaries about as long as the ovary; follicles falcate, articulate, 6–9 cm. long, minutely puberulent to glabrate.

TYPE LOCALITY: Rio Blanco, Jalisco.
DISTRIBUTION: Jalisco.

14. **Mandevilla oaxacana** (A. DC.) Hemsl. Biol. Centr. Am. Bot. **2**: 316. 1881.

Echites oaxacana A. DC. in DC. Prodr. **8**: 451. 1844.
Echites cordata A. DC. in DC. Prodr. **8**: 451. 1844.
Echites glaucescens Mart. & Gal. Bull. Acad. Brux. **11**[1]: 358. 1844.
Amblyanthera oaxacana Muell.-Arg. Linnaea **30**: 447. 1860.
Temnadenia cordata Miers, Apoc. S. Am. 212. 1878.
Temnadenia glaucescens Miers, Apoc. S. Am. 214. 1878.
Mesechites oaxacana Miers, Apoc. S. Am. 234. 1878.
Mesechites hirtellula Miers, Apoc. S. Am. 234. 1878.
Mandevilla Schumanniana Loesener, Bull. Herb. Boiss. **2**: 556. 1894.

Suffruticose liana; leaves membranaceous, lanceolate to ovate-lanceolate, 3–9 cm. long, 0.7–4.5 cm. broad, acuminate, somewhat cordate at the base, glabrous above and glandular at

the base of the midrib, sparsely and irregularly pilosulous to glabrate beneath, the petioles 5–20 mm. long; racemes alternate-axillary, about as long as the leaves, bearing 3–8 rather distant, yellowish flowers; pedicels 7–13 mm. long; calyx-lobes narrowly ovate-triangular, acuminate, 2–3 mm. long, glabrous, the squamellae numerous, indefinitely distributed; corolla infundibuliform, glabrous externally, the tube proper 8–12 mm. long, about 2 mm. in diameter at the base, manifestly constricted at the insertion of the stamens, the throat rather narrowly conic-campanulate, about as long as the tube proper, about 7.5 mm. in diameter at the orifice, the lobes obliquely obovate, 5–6 mm. long, spreading; anthers 4 mm. long, obscurely auriculate; nectaries 5, about as long as the ovary or somewhat longer; follicles somewhat falcate, obscurely articulate, 8–10 cm. long, glabrous.

TYPE LOCALITY: Oaxaca (state).
DISTRIBUTION: Oaxaca.

15. **Mandevilla convolvulacea** (A. DC.) Hemsl. Biol. Centr. Am. Bot. **2**: 316. 1881.

Echites convolvulacea A. DC. in DC. Prodr. **8**: 451. 1844.
Amblyanthera convolvulacea Muell.-Arg. Linnaea **30**: 423. 1860.

Suffruticose liana; leaves membranaceous, ovate to ovate-oblong, 8–12 cm. long, 3–7 cm. broad, acuminate, broadly cordate at the base, minutely puberulent above when young, becoming sparsely hispidulous to glabrate, and glandular at the base of the midrib, densely puberulent to tomentulose beneath, especially along the veins, the petioles 10–15 mm. long; racemes alternate-axillary, simple, secund, conspicuously longer than the leaves, bearing 10–15 yellowish flowers of medium size; pedicels 8–12 mm. long; calyx-lobes ovate-lanceolate, acuminate, 2–3 mm. long, glabrous or very sparsely pilosulous, the squamellae numerous, indefinitely distributed; corolla infundibuliform, glabrous externally, the tube proper 3–4 mm. long, about 1.5 mm. in diameter at the base, the throat conic, 5–7 mm. long, about 5 mm. in diameter at the orifice, the lobes obliquely obovate, 5 mm. long, spreading; anthers 3–4 mm. long; nectaries 5, about as long as the ovary; follicles unknown.

TYPE LOCALITY: "Peru."
DISTRIBUTION: Puebla.
NOTE: Apparently no accurate illustration exists of this species. The plant illustrated by Miers (Apoc. S. Am. *pl. 29*) as this species is *Mandevilla Bridgesii* (Muell.-Arg.) Woodson.

16. **Mandevilla Andrieuxii** (Muell.-Arg.) Hemsl. Biol. Centr. Am. Bot. **2**: 316. 1881.

Amblyanthera Andrieuxii Muell.-Arg. Linnaea **30**: 422. 1860.
Echites Andrieuxii Miers, Apoc. S. Am. 206. 1878.
Mesechites Andrieuxii Miers, Apoc. S. Am. 235. 1878.

Suffruticose liana; leaves membranaceous, narrowly obovate to obovate-lanceolate, 2–5 cm. long, 0.8–1.5 cm. broad, acute to abruptly acuminate, at the base broadly obtuse to rounded, not cordate (at least the upper), puberulent to minutely and sparsely hispidulous above, and glandular at the base of the midrib, densely puberulent to tomentulose beneath, the petioles 3–5 mm. long; racemes alternate-axillary to subterminal, simple, not secund, about as long as the leaves or somewhat longer, lax, bearing 8–12 yellowish flowers of medium size; pedicels 8–10 mm. long; calyx-lobes ovate-lanceolate, acuminate, 4–5 mm. long, sparsely puberulent, the squamellae numerous, indefinitely distributed; corolla infundibuliform, glabrous externally, the tube proper 3–4 mm. long, about 1.5 mm. in diameter at the base, the throat conic, 5–6 mm. long, about 6 mm. in diameter at the orifice, the lobes obliquely obovate, 4 mm. long, spreading; nectaries 5, about as long as the ovary; follicles unknown.

TYPE LOCALITY: San Francisco, near Oaxaca, Oaxaca.
DISTRIBUTION: Oaxaca.

17. **Mandevilla veraguasensis** (Seem.) Hemsl. Biol. Centr. Am. Bot. **2**: 317. 1881.

Echites veraguasensis Seem. Bot. Voy. Herald 168. 1854.
Mandevilla Loeseneriana K. Schumann, Bot. Jahrb. **25**: 725. 1898.

Fruticose or suffruticose liana; leaves firmly membranaceous, broadly ovate to ovate-elliptic, 5–13 cm. long, 2.5–7 cm. broad, shortly acuminate, broadly cordate at the base, glabrous or essentially so above and glandular at the base of the midrib, minutely pilose to glabrate beneath, the petioles 10–25 mm. long; racemes alternate-axillary, about as long as the leaves, bearing 5–12 conspicuous purplish flowers; pedicels 2–3 cm. long; calyx-lobes ovate-triangular, acute, 3–6 mm. long, glabrous, the squamellae in alternate groups of 6–8; corolla infundibuliform, glabrous to minutely puberulent-papillate externally, the tube proper 20–25 mm. long, about 2 mm. in diameter at the base, the throat broadly conic-campanulate, 15–20 mm. long, about 10 mm. in diameter at the orifice, the lobes obliquely obovate, 25–30 mm. long, spreading; anthers truncate, 7 mm. long; nectaries 5, somewhat less than half as long as the ovary; follicles unknown.

TYPE LOCALITY: Chiriquí Volcano, [Chiriquí,] Panama.
DISTRIBUTION: Costa Rica and Panama; also in Venezuela, Colombia, and Ecuador.

18. **Mandevilla Pittieri** Woodson, Ann. Mo. Bot. Gard. **23**: 378. 1936.

Erect, suffrutescent herb or undershrub, the branches occasionally somewhat twining at the tips; leaves firmly membranaceous, oblong-elliptic, 7–8 cm. long, 3–3.5 cm. broad, shortly and somewhat subcaudately acuminate, broadly obtuse to rounded at the base, glabrous, glandular at the base of the midrib above, the petioles 12–15 mm. long; racemes simple, terminal or subterminal, bearing 3–5 conspicuous creamy-white flowers, the peduncles about twice as long as the subtending petioles; pedicels 2 cm. long; calyx-lobes ovate, acuminate, 4–5 mm. long, minutely papillate, the squamellae numerous, indefinitely distributed; corolla infundibuliform, glabrous externally, the tube proper 12–13 mm. long, about 1.8 mm. in diameter at the base, the throat narrowly conic, 14 mm. long, about 7 mm. in diameter at the orifice, the lobes obliquely obovate, 16–17 mm. long, spreading; anthers 9 mm. long; nectaries 2, much shorter than the ovary; follicles unknown.

TYPE LOCALITY: Luis, Costa Rica; alt. 650 meters.
DISTRIBUTION: Known only from the type locality.

19. **Mandevilla subsagittata** (R. & P.) Woodson, Ann. Mo. Bot. Gard. **19**: 69. 1932.

Echites subsagittata R. & P. Fl. Per. **2**: 19. 1799.
Echites hirtella H. B. K. Nov. Gen. & Sp. **3**: 213. 1819.
Echites gracilis H. B. K. Nov. Gen. & Sp. **3**: 219. 1819.
Echites speciosa H. B. K. Nov. Gen. & Sp. **3**: 219. 1819.
Echites mucronata R. & S. Syst. Veg. **4**: 796. 1819.
Exothostemon gracile G. Don, Gen. Hist. **4**: 82. 1838.
Exothostemon speciosum G. Don, Gen. Hist. **4**: 82. 1838.
Echites jasminiflora Mart. & Gal. Bull. Acad. Brux. **11**[1]: 357. 1844.
? *Echites lanata* Mart. & Gal. Bull. Acad. Brux. **11**[1]: 359. 1844.
Echites microcalyx A. DC. in DC. Prodr. **8**: 456. 1844.
Echites microcalyx var. *glabra* A. DC. in DC. Prodr. **8**: 456. 1844.
Echites hirtiflora A. DC. in DC. Prodr. **8**: 456. 1844.
Echites membranacea A. DC. in DC. Prodr. **8**: 457. 1844.
Echites secundiflora A. DC. in DC. Prodr. **8**: 457. 1844.
Amblyanthera membranacea Muell.-Arg. Linnaea **30**: 423. 1860.
Amblyanthera microcalyx Muell.-Arg. Linnaea **30**: 428. 1860.
Amblyanthera microcalyx var. *trichantha* Muell.-Arg. Linnaea **30**: 428. 1860.
Amblyanthera microcalyx var. *hirtiflora* Muell.-Arg. Linnaea **30**: 428. 1860.
Amblyanthera microcalyx var. *leiantha* Muell.-Arg. Linnaea **30**: 429. 1860.
Amblyanthera microcalyx var. *leiophylla* Muell.-Arg. Linnaea **30**: 429. 1860.
Amblyanthera microcalyx var. *glabra* Muell.-Arg. Linnaea **30**: 429. 1860.
Temnadenia secundiflora Miers, Apoc. S. Am. 211. 1878.
Mesechites hastata Miers, Apoc. S. Am. 233. 1878.

Mesechites guayaquilensis Miers, Apoc. S. Am. 233. 1878.
Mesechites hirtella Miers, Apoc. S. Am. 234. 1878.
Mesechites jasminiflora Miers, Apoc. S. Am. 235. 1878.
Echites cuspidifera Blake, Contr. Gray Herb. **52**: 79. 1917.

Suffrutescent liana, glabrous or variously pubescent; leaves membranaceous, oblong-elliptic, infrequently narrowly lanceolate, 2–10 cm. long, 0.5–3 cm. broad, rather gradually acuminate, or rarely abruptly obtuse or rounded, and mucronulate, rather gradually narrowed and abruptly auriculate, commonly almost subhastate, at the base, glandular along the midrib above, the petioles 5–10 mm. long; racemes alternate-axillary, simple, more or less secund, as long as the leaves or somewhat longer, bearing 8–20 yellowish, orange-flushed flowers of moderate size; pedicels 4–6 mm. long; bracts scarious, lanceolate, 1–5 mm. long; calyx-lobes narrowly triangular, 1–1.5 mm. long, each bearing a single, opposite squamella within; corolla salverform, the tube more or less gibbous or ventricose, 20–25 mm. long, about 2 mm. in diameter at the base, the lobes obliquely obovate, 10–15 mm. long, spreading; nectaries 5, about half as long as the ovary; follicles relatively slender, conspicuously moniliform, 10–20 cm. long.

TYPE LOCALITY: Cuchero, Peru.
DISTRIBUTION: Michoacan to Vera Cruz, and southeastward to Panama; also in northern South America.

20. **Mandevilla villosa** (Miers) Woodson, Ann. Mo. Bot. Gard. **19**: 70. 1932.

Laseguea villosa Miers, Apoc. S. Am. 250. 1878.
Echites comosa Kuntze, Rev. Gen. 414. 1891.

Suffrutescent liana; leaves membranaceous, elliptic to obovate-elliptic, 3–9 cm. long, 1.5–4 cm. broad, rather abruptly acuminate, obscurely auriculate or commonly almost subhastate at the base, finely and sparsely pilose to glabrate above and glandular along the midrib, finely and densely pilosulous to glabrate or glabrous beneath, the petioles 4–25 mm. long; racemes simple, alternate-axillary, secund, about as long as the leaves or somewhat longer, bearing 8–20 yellowish, orange-flushed flowers of moderate size; pedicels 2–4 mm. long; bracts more or less petaloid or foliaceous, conspicuous, deciduous, lanceolate to ovate-lanceolate, 10–35 mm. long; calyx-lobes triangular, acute to acuminate, 1–1.5 mm. long, each bearing an opposite squamella within; corolla salverform, finely pilosulous to glabrate externally, the tube somewhat gibbous or ventricose, 15–20 mm. long, about 2 mm. in diameter at the base, the lobes obliquely obovate-oblong, 10–15 mm. long, spreading; nectaries 5, about half as long as the ovary; follicles slender, conspicuously moniliform, 10–15 cm. long, glabrous.

TYPE LOCALITY: Nicaragua.
DISTRIBUTION: Chiapas to Salvador; Nicaragua to Panama; also in Venezuela.

21. **Mandevilla hirsuta** (Rich.) K. Schumann, in E. & P. Nat. Pfl. **4**^{2}: 171. 1895.

Echites hirsuta Rich. Act. Soc. Hist. Nat. Paris **1**: 107. 1792.
Echites tomentosa Vahl, Symb. **3**: 44. 1794.
Echites macrophylla H. B. K. Nov. Gen. & Sp. **3**: 218. 1819. Not *E. macrophylla* Roxb. 1824.
Echites Richardi R. & S. Syst. Veg. **4**: 391. 1819.
Echites hispida Willd.; R. & S. Syst. Veg. **4**: 795. 1819.
Echites campestris Vell. Fl. Flum. 113. 1825; Ic. Fl. Flum. **3**: *pl. 43*. 1827.
Exothostemon macrophyllum, G. Don, Gen. Hist. **4**: 82. 1838.
Echites auriculata Pohl; Stadelm. Flora **24**: Beibl. **1**: 25. 1841.
Echites hirsuta var. *latifolia* Stadelm. Flora **24**: Beibl. **1**: 27. 1841.
Echites almadensis Stadelm. Flora **24**: Beibl. **1**: 28. 1841.
Echites Stadelmeyeri Mart.; Stadelm. Flora **24**: Beibl. **1**: 29. 1841.
Echites ciliata Stadelm. Flora **24**: Beibl. **1**: 32. 1841.
Echites fluminensis A. DC. in DC. Prodr. **8**: 452. 1844.
Echites fluminensis var. *Claussenii* A. DC. in DC. Prodr. **8**: 452. 1844.
Echites tomentosa var. *laticordata* A. DC. in DC. Prodr. **8**: 463. 1844.
Amblyanthera ciliata Muell.-Arg. in Mart. Fl. Bras. **6**^{1}: 145. 1860.
Amblyanthera palustris Muell.-Arg. in Mart. Fl. Bras. **6**^{1}: 145. 1860.
Amblyanthera palustris var. *almadensis* Muell.-Arg. in Mart. Fl. Bras. **6**^{1}: 146. 1860.
Amblyanthera hispida Muell.-Arg. in Mart. Fl. Bras. **6**^{1}: 147. 1860.
Amblyanthera hispida var. *tomentosa* Muell.-Arg. in Mart. Fl. Bras. **6**^{1}: 148. 1860.
Amblyanthera fluminensis Muell.-Arg. in Mart. Fl. Bras. **6**^{1}: 148. 1860.

Amblyanthera fluminensis var. *Stadelmeyeri* Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 149. 1860.
Amblyanthera fluminensis var. *Claussenii* A. DC.; Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 149. 1860.
Amblyanthera campestris Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 149. 1860.
Rhabdadenia campestris Miers, Apoc. S. Am. 121. 1878.
Amblyanthera hirsuta Miers, Apoc. S. Am. 185. 1878.
Amblyanthera Claussenii Miers, Apoc. S. Am. 187. 1878.
Amblyanthera ovata Miers, Apoc. S. Am. 188. 1878.
Temnadenia pallidiflora Miers, Apoc. S. Am. 211. 1878.
Temnadenia palustris Miers, Apoc. S. Am. 213. 1878.
Temnadenia tomentosa Miers, Apoc. S. Am. 213. 1878.
Mandevilla hispida Hemsl. Biol. Centr. Am. Bot. **2**: 316. 1881.
Mandevilla palustris Hemsl. Biol. Centr. Am. Bot. **2**: 317. 1881.
Mandevilla tomentosa Kuntze, Rev. Gen. 416. 1891.
Mandevilla tomentosa var. *Vahleana* Kuntze, Rev. Gen. 416. 1891.
Mandevilla tomentosa var. *hirsuta* Kuntze, Rev. Gen. 416. 1891.
Mandevilla tomentosa var. *hispida* Kuntze, Rev. Gen. 416. 1891.
Mandevilla fluminensis Donn. Smith, Enum. Pl. Guat. **2**: 47. 1891.
Mandevilla auriculata K. Schumann, in E. & P. Nat. Pfl. **4**[2]: 171. 1895.
Mandevilla Rusbyi Britton; Rusby, Bull. N. Y. Bot. Gard. **4**: 409. 1907.
Mandevilla denticulata Blake, Contr. Gray Herb. **52**: 81. 1917.

Fruticose or suffruticose liana; leaves membranaceous, obovate-elliptic to oblong-elliptic, 5–20 cm. long, 2–8 cm. broad, rather abruptly acuminate, obscurely auriculate at the base, strigillose above and glandular along the midrib, minutely tomentulose beneath, the petioles 1–4 mm. long; racemes alternate-axillary, simple, about as long as the leaves or somewhat longer, bearing 5–25 rather showy, reddish-yellow flowers; pedicels 2–5 mm. long, hispidulous; bracts petaloid or foliaceous, ovate to ovate-lanceolate, caducuous, 5–20 mm. long; calyx-lobes lanceolate to ovate-lanceolate, acuminate, 5–10 mm. long, scarious or somewhat petaloid, hispidulous, each bearing a solitary opposite squamella within; corolla infundibuliform, pilose externally, the tube proper, somewhat gibbous, 20–35 mm. long, about 2 mm. in diameter at the base, the throat conic or conic-campanulate, 15–20 mm. long, about the same in diameter at the orifice, the lobes obliquely obovate-dolabriform, 15–18 mm. long, spreading; nectaries about half as long as the ovary; follicles rather stout, conspicuously articulate, 6–15 cm. long, hispidulous to glabrate.

TYPE LOCALITY: French Guiana.

DISTRIBUTION: British Honduras and Guatemala, and southward to Panama; also in South America.

ILLUSTRATIONS: Vahl, Eclog. *pl. 4;* Miq. Stirp. Surin. *pl. 44;* Mart. Fl. Bras. **6**[1]: *pl. 45;* Miers, Apoc. S. Am. *pl. 25.*

27. MACROSIPHONIA Muell.-Arg. in Mart. Fl. Bras. **6**[1]: 137. 1860.

Echites § *Macrosiphon* A. DC. in DC. Prodr. **8**: 471. 1844.

Suffrutescent herbs or low shrubs. Leaves opposite, or rarely verticillate, shortly petiolate to sessile, glandular at the base of the midrib above. Inflorescence terminal, rarely subterminal or lateral, usually 1-flowered, rarely with 2 or 3 flowers. Calyx 5-parted nearly to the receptacle, the lobes subequal, more or less foliaceous or petaloid, bearing numerous, indefinitely distributed squamellae within. Corolla infundibuliform, the limb equally 5-lobed, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, the connective enlarged, obtusely 2-lobed. Ovary apocarpous, containing many ovules, surrounded by 5 separate or somewhat concrescent nectaries. Stigma relatively massive, umbraculiform-subglochidiate. Fruit follicular; seeds numerous, truncate, comose at the apex.

Type species, *Echites Velame* St. Hil.

Plants fruticose; stems 7–10 dm. tall, ligneous throughout. 1. *M. hesperia.*
Plants suffrutescent; stems 1–3 dm. tall, predominantly herbaceous.
  Corolla-tube barely as long as the throat, or shorter; inflorescence 1–3-flowered.
    Leaves ovate to ovate-elliptic, 1.5–3 cm. long; inflorescence without an evident peduncle below the paired bracts. 2. *M. brachysiphon.*
    Leaves narrowly oblong to linear, 2–9 cm. long; inflorescence with an evident peduncle below the paired bracts. 3. *M. hypoleuca.*
  Corolla-tube much longer than the throat; flowers solitary, or very rarely 2 or 3.
    Calyx-lobes somewhat petaloid. 4. *M. lanuginosa.*
    Calyx-lobes manifestly foliaceous. 5. *M. macrosiphon.*

1. **Macrosiphonia hesperia** I. M. Johnston, Proc. Calif. Acad. IV. **12**: 1125. 1924.

Erect or diffuse shrub, 7–10 dm. tall; leaves subcoriaceous, ovate-orbicular, 20–30 mm. long, 18–25 mm. broad, abruptly rounded, or frequently more or less retuse, and mucronulate, broadly and very obscurely cordate at the base, hirtellous above, densely tomentulose beneath, the petioles 2–3 mm. long; inflorescence bearing 1 or 2, rarely 3, white vespertine flowers; pedicels 4–7 mm. long; calyx-lobes oblong to oblong-spatulate, 8 mm. long, densely and minutely hirtellous; corolla infundibuliform, glabrous externally, the tube proper 4–5 mm. long, about 1 mm. in diameter at the base, the throat narrowly conic or subtubular, 7–8 mm. long, about 3–4 mm. in diameter at the orifice, the lobes obliquely obovate, 12–13 mm. long, spreading; follicles more or less torulose, 10–12 cm. long, essentially glabrous.

TYPE LOCALITY: Puerto Ballandra, Carmen Island, Lower California.
DISTRIBUTION: Lower California.

2. **Macrosiphonia brachysiphon** (Torr.) A. Gray, Syn. Fl. N. Am. **2**[1]: 83. 1878.

Echites brachysiphon Tor. Bot. Mex. Bound. Surv. 159. 1859.

Erect or diffuse suffrutescent herb, 1–3 dm. tall; leaves ovate to ovate-elliptic, 15–30 mm. long, 7–15 mm. broad, acute at the apex, abruptly rounded to obtuse at the base, minutely puberulent to glabrate on both sides, the petioles 1–2 mm. long; inflorescence bearing 1–3 conspicuous white vespertine flowers, the peduncle obsolete or scarcely manifest; pedicels 5–12 mm. long; calyx-lobes narrowly oblong, acute to acuminate, 5–7 mm. long, 2–3 mm. broad, somewhat petaloid, minutely puberulent to glabrate; corolla infundibuliform, densely and minutely puberulent-papillate externally, the tube proper 10–15 mm. long, about 1.5 mm. in diameter at the base, the throat narrowly conic or subtubular-conic, 10–12.5 mm. long, about 4 mm. in diameter at the orifice, the lobes obliquely obovate, 7–13 mm. long, widely spreading; follicles slender, continuous or slightly articulate, 8–10 cm. long, minutely puberulent-papillate.

TYPE LOCALITY: Arroyo de los Janos, Sonora.
DISTRIBUTION: New Mexico, Arizona, and Sonora.

3. **Macrosiphonia hypoleuca** (Benth.) Muell.-Arg. Linnaea **30**: 452. 1860.

Echites hypoleuca Benth. Pl. Hartw. 23. 1839.
Echites suaveolens Mart. & Gal. Bull. Acad. Brux. **11**[1]: 356. 1844. Not *E. suaveolens* A. DC. 1844.
Macrosiphonia Wrightii A. Gray, Syn. Fl. N. Am. **2**[1]: 83. 1878.
Rhodocalyx suaveolens Miers, Apoc. S. Am. 139. 1878.
Rhodocalyx hypoleucus Miers, Apoc. S. Am. 140. 1878.

Erect or diffuse suffrutescent herb, 1–3 dm. tall; leaves narrowly oblong to linear, 20–90 mm. long, 4–22 mm. broad, acute, or rarely acuminate or narrowly obtuse, abruptly rounded, obtuse, or truncate at the base, dark-green and hirtellous to glabrate above, much paler and densely tomentulose beneath, the petioles 1–2 mm. long; inflorescence bearing 1–3 white vespertine flowers, the peduncle conspicuous, somewhat shorter than the leaves; pedicels 5–10 mm. long; calyx-lobes narrowly oblong-lanceolate, acuminate, 5–10 mm. long, somewhat petaloid, minutely puberulent-tomentulose; corolla infundibuliform, finely floccose-tomentulose externally, the tube proper 10–25 mm. long, about 1.25 mm. in diameter at the base, the throat narrowly conic or subtubular, 15–25 mm. long, 5–7.5 mm. in diameter at the orifice, the lobes obliquely obovate, 15–25 mm. long, spreading; follicles stout, continuous or slightly articulate, 9–13 cm. long, finely puberulent-papillate.

TYPE LOCALITY: Aguascalientes, Aguascalientes.
DISTRIBUTION: Chihuahua to Guanajuato and Michoacan.

4. **Macrosiphonia lanuginosa** (Mart. & Gal.) Hemsl. Biol. Centr. Am. Bot. **2**: 316. 1881.

Echites lanuginosa Mart. & Gal. Bull. Acad. Brux. 11[1]: 357. 1844.
Rhodocalyx lanuginosus Miers, Apoc. S. Am. 139. 1878.

Erect or somewhat diffuse suffrutescent herb, 1–3 dm. tall; leaves subsessile, broadly oblong to ovate-elliptic, 1.5–4 cm. long, 0.5–2 cm. broad, acute to obtuse at the apex, truncate, rounded, or broadly obtuse at the base, dark-green and finely hirtellous above, much paler and densely tomentulose beneath; inflorescence bearing 1–3 rather showy, white, vespertine flowers, the peduncle obsolete or scarcely manifest; pedicels 5–10 mm. long; calyx-lobes oblong-lanceolate, acuminate, 5–8 mm. long, somewhat petaloid; corolla infundibuliform, densely puberulent-papillate externally, the tube proper 30–60 mm. long, about 1.5 mm. in diameter at the base, the throat narrowly conic or subtubular, 10–20 mm. long, 5–7 mm. in diameter at the orifice, the lobes obliquely obovate, 15–20 mm. long, spreading; follicles relatively stout, more or less articulate, 10–15 cm. long, irregularly puberulent to glabrate.

TYPE LOCALITY: Mextitlan, Hidalgo.
DISTRIBUTION: Durango to San Luis Potosi and Tamaulipas, and southward to Hidalgo and Puebla; (?) Oaxaca.

5. **Macrosiphonia macrosiphon** (Torr.) A. Heller, Muhlenbergia 1: 2. 1900.

Echites macrosiphon Torr. Bot. Mex. Bound. Surv. 158. 1859.
Macrosiphonia Berlandieri A. Gray, Syn. Fl. N. Am. 2[1]: 83. 1878.

Erect or somewhat diffuse suffrutescent herb, 1.5–3 dm. tall; leaves ovate-elliptic to suborbicular, 1.5–5 cm. long, 1–4.5 cm. broad, at the apex abruptly obtuse or rounded, or infrequently acute to somewhat retuse and mucronulate, obtuse or rounded at the base, densely tomentulose on both sides, the petioles 2–10 mm. long; inflorescence bearing a solitary, showy, white, vespertine flower, the peduncle obsolete or essentially so; pedicel 2–5 mm. long; calyx-lobes lanceolate to ovate, acute to acuminate, 10–20 mm. long, 2–5 mm. broad, conspicuously foliaceous, densely tomentulose; corolla infundibuliform, densely puberulent-papillate externally, the tube proper 35–90 mm. long, about 1.5 mm. in diameter at the base, the throat narrowly conic to subtubular, 10–25 mm. long, 5–7 mm. in diameter at the orifice, the lobes obliquely obovate, 15–30 mm. long, spreading; follicles relatively slender, continuous, 10–15 cm. long, puberulent-papillate to glabrate.

TYPE LOCALITY: Texas.
DISTRIBUTION: Texas, Chihuahua, and Durango.
ILLUSTRATION: Torr. Bot. Mex. Bound. Surv. *pl. 43.*

28. **FORSTERONIA** G. Meyer, Fl. Esseq. 133. 1818.

Thyrsanthus Benth. Jour. Bot. Hook. 3: 245. 1841.
Aptotheca Miers, Apoc. S. Am. 150. 1878.

Fruticose or suffruticose lianas. Leaves opposite, or rarely verticillate in some species, glandular at the base of the midrib above, or infrequently eglandular, usually bearing an inconspicuous pit in the axils of the midrib and principal veins beneath. Inflorescence terminal, or both terminal and lateral, aggregate-dichasial to thyrsiform, bearing numerous small, white or greenish, rarely scarlet or flesh-colored flowers. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, more or less imbricate, scarious, usually bearing several to numerous squamellae within. Corolla rotate or subrotate, the tube relatively short, the orifice not annulate, the limb equally 5-parted, dextrorsely or rarely sinistrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, rather narrowly 2-lobed connective. Ovary apocarpous or very rarely syncarpous, bearing numerous ovules, surrounded by 5 separate or more or less concrescent nectaries; stigma fusiform or subcapitate. Follicles separate or very rarely more or less agglutinated; seeds numerous, truncate, comose at the apex.

Type species, *Echites spicata* Jacq.

Anther-tips barely exserted or essentially included; filaments free and distinct, not agglutinated to the style.
  Calyx-lobes somewhat shorter than the corolla-tube; anthers minutely barbellate; British Honduras. 1. *F. viridescens.*
  Calyx-lobes much longer than the corolla-tube; anthers glabrous; Jamaica. 2. *F. Wilsonii.*
Anthers wholly exserted; filaments agglutinated to the style, at least above.
  Leaves glandular at the base of the midrib above.
    Calycine squamellae numerous, indefinitely distributed. 3. *F. myriantha.*
    Calycine squamellae alternate with the calyx-lobes, solitary, or infrequently in groups of 2 or 3.
      Ovary apocarpous; fruit unknown. 4. *F. chiriquensis.*
      Ovary syncarpous; fruit a bicarpellary false capsule. 5. *F. spicata.*
  Leaves not glandular.
    Corolla greenish-white.
      Secondary veins of the leaves relatively close, subhorizontal; Jamaica. 6. *F. floribunda.*
      Secondary veins of the leaves relatively distant, broadly arcuate; British Honduras. 7. *F. peninsularis.*
    Corolla scarlet, or rarely flesh-colored.
      Follicles slender, acuminate, somewhat flexuous; corolla-lobes glabrous within, or minutely and irregularly ciliate; Puerto Rico. 8. *F. portoricensis.*
      Follicles stout and rigid, blunt, nearly straight; corolla-lobes minutely papillate within, or rarely glabrate; Cuba and Hispaniola. 9. *F. corymbosa.*

1. **Forsteronia viridescens** Blake, Contr. Gray Herb. **52**: 80. 1917.

Fruticose liana; leaves coriaceous or subcoriaceous, oblong-elliptic, 9–13 cm. long, 2.5–6 cm. broad, very shortly and abruptly acuminate, broadly obtuse or rounded at the base, glabrous throughout, glandular at the base of the midrib above, the petioles 3–6 mm. long; inflorescence thyrsiform, terminal or both terminal and lateral, somewhat shorter than the leaves, bearing numerous small greenish-white flowers; pedicels 0.9–1.8 mm. long, minutely puberulent-papillate; calyx-lobes ovate to ovate-lanceolate, scarious, 0.9–1.3 mm. long, very minutely puberulent-papillate; corolla subrotate, densely puberulent-papillate externally, the tube 1.5–1.7 mm. long, about 0.75 mm. in diameter at the base, 1.75–2 mm. in diameter at the orifice, the lobes broadly oblong to ovate-oblong, 1.8–2 mm. long, spreading; filaments free and distinct; anthers slightly exserted at the tips and there minutely and sparsely barbellate, 1.5–1.7 mm. long; nectaries much shorter than the apocarpous ovary; follicles unknown.

TYPE LOCALITY: Near Manatee Lagoon, British Honduras.
DISTRIBUTION: British Honduras.

2. **Forsteronia Wilsonii** (Griseb.) Woodson, Ann. Mo. Bot. Gard. **22**: 174. 1935.

Thyrsanthus Wilsonii Griseb. Fl. Brit. W. Ind. 412. 1861.

Fruticose or suffruticose liana; leaves membranaceous, elliptic, 4–11 cm. long, 1.5–4 cm. broad, rather abruptly and acutely subcaudate-acuminate, broadly obtuse at the base, glabrous, inconspicuously glandular at the base of the midrib above, the petioles 2–5 mm. long; inflorescence thyrsiform, much shorter than the leaves, bearing numerous small white flowers; pedicels about 1 mm. long, puberulent-papillate; calyx-lobes linear to linear-lanceolate, acuminate, 3.8–4 mm. long, slightly foliaceous, rather sparsely puberulent-papillate; corolla subrotate, sparsely puberulent-papillate externally, the tube 1.2–1.5 mm. long, about 0.7 mm. in diameter at the base and 1.5–1.8 mm. in diameter at the orifice, the lobes ovate-oblong, 2–2.5 mm. long, spreading; filaments free and distinct; anther-tips glabrous, slightly exserted; nectaries much shorter than the apocarpous ovary; follicles unknown.

TYPE LOCALITY: Manchester, Jamaica.
DISTRIBUTION: Jamaica.

3. **Forsteronia myriantha** Donn. Smith, Bot. Gaz. **27**: 435. 1899.

Fruticose liana; leaves membranaceous, elliptic to oval, 4.5–10 cm. long, 2–4.5 cm. broad, acute to acuminate, obtuse to broadly acute at the base, glabrous, or infrequently sparsely

and irregularly pilosulous beneath, inconspicuously glandular at the base of the midrib above, the petioles 2–4.5 mm. long; inflorescence thyrsiform, terminal, shorter than the subtending leaves, bearing numerous small white flowers; pedicels 1–2 mm. long, puberulent to puberulent-papillate; calyx-lobes ovate, broadly acute to obtuse, 1–1.2 mm. long, scarious, puberulent or rarely tomentulose externally, the squamellae numerous, indefinitely distributed; corolla subrotate, glabrous to very minutely papillate externally, the tube 0.7–1 mm. long, 0.5–0.7 mm. in diameter at the base, 1.5–1.7 mm. in diameter at the orifice, the lobes oblong-obovate, 2.5–3 mm. long, spreading; anthers glabrous, widely exserted; nectaries somewhat shorter than the apocarpous ovary; follicles unknown.

TYPE LOCALITY: Embaulada, Zacatepéquez, Guatemala; alt. 1800 meters.
DISTRIBUTION: Guatemala; Costa Rica and Panama.

4. **Forsteronia chiriquensis** Woodson, Ann. Mo. Bot. Gard. **22**: 203. 1935.

Fruticose liana; leaves membranaceous, oblong-elliptic to obovate-elliptic, 7–10 cm. long, 3.2–3.8 cm. broad, shortly and abruptly subcaudate-acuminate, broadly obtuse at the base, glabrous and glandular at the base of the midrib above, inconspicuously barbellate along the midrib in the axils of the lateral veins beneath, the petioles 3–5 mm. long; inflorescences subspiciform-thyrsiform, about equaling the leaves, bearing numerous small greenish-white (?) flowers; pedicels scarcely manifest; bracts lanceolate to ovate-lanceolate, 1–4.5 mm. long, subfoliaceous; calyx-lobes ovate-lanceolate, acuminate, 2.5–3 mm. long, subfoliaceous, minutely puberulent-papillate; corolla subrotate, essentially glabrous externally, the tube about 1 mm. long, about 0.5 mm. in diameter at the base and 1.75 mm. in diameter at the orifice, the lobes oblong-obovate, 2.8–3 mm. long, spreading; anthers glabrous, wholly exserted; nectaries somewhat shorter than the apocarpous ovary; follicles unknown.

TYPE LOCALITY: Chiriqui, Panama.
DISTRIBUTION: Known only from the type locality.

5. **Forsteronia spicata** (Jacq.) G. Meyer, Fl. Esseq. 135. 1818.

Echites spicata Jacq. Enum. Pl. Carib. 13. 1760.
Parsonsia spicata R. Br.; R. & S. Syst. Veg. 4: 403. 1819.
Thyrsanthus corylifolius Griseb. Mem. Am. Acad. II. 8: 519. 1862.
Forsteronia corylifolia Griseb. Cat. Pl. Cub. 172. 1866.
Thyrsanthus spicatus Miers, Apoc. S. Am. 95. 1878.
Aplotheca corylifolia Miers, Apoc. S. Am. 150. 1878.

Fruticose liana; leaves firmly membranaceous, broadly oval to obovate-elliptic, 6–16 cm. long, 3.5–9 cm. broad, very abruptly and shortly subcaudate-acuminate, or the lower leaves infrequently acute or obtuse, broadly obtuse or rounded at the base, above sparsely and minutely ferruginous-pilosulous, more densely so along the veins, or occasionally glabrate, always inconspicuously glandular at the base of the midrib, beneath minutely tomentulose, the petioles 4–10 mm. long; inflorescence subspiciform-thyrsiform, both terminal and lateral, much shorter than the leaves, bearing numerous small white flowers; pedicels scarcely manifest; bracts ovate, 1–5 mm. long, subfoliaceous; calyx-lobes ovate, acute to acuminate, 2.5–4 mm. long, slightly foliaceous, minutely and densely tomentulose externally; corolla subrotate, glabrous or essentially glabrous externally, the tube 1.5–2 mm. long, about 1 mm. in diameter at the base, 2–2.5 mm. in diameter at the orifice, the lobes oblong-ovate, 3.5–4 mm. long, spreading; anthers glabrous, wholly exserted; nectaries much shorter than the tomentulose, essentially syncarpous ovary; follicles essentially united, relatively stout and rigid, continuous, 12–19 cm. long, minutely ferruginous-tomentulose when immature, becoming glabrate.

TYPE LOCALITY: [Cartagena, Colombia.]
DISTRIBUTION: Cuba; Guerrero; Chiapas to Salvador and Nicaragua; also in Colombia.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 29;* Miers, Apoc. S. Am. *pl. 21, B.*

6. **Forsteronia floribunda** (Sw.) A. DC. in DC. Prodr. **8**: 437. 1844.

Echites floribunda Sw. Prodr. 52. 1788.
Parsonsia floribunda R. Br.; R. & S. Syst. Veg. 4: 402. 1819.
Forsteronia Alexandri Griseb. Fl. Brit. W. Ind. 412. 1861.

Fruticose or suffruticose liana; leaves coriaceous, oblong-elliptic to broadly oval, 4–11 cm. long, 0.8–5 cm. broad, very shortly and abruptly acuminate to obtusish, broadly obtuse at the base, glabrous throughout, eglandular and somewhat lustrous above, the secondary veins subhorizontal and relatively dense, the petioles 3.5–8 mm. long; inflorescence aggregate-dichasial to thyrsiform, terminal, somewhat shorter than the leaves, bearing many small greenish-white flowers; pedicels 3–4 mm. long, minutely papillate; calyx-lobes ovate, acute to obtuse, 2–3 mm. long, essentially glabrous to minutely and rather indefinitely papillate; corolla subrotate, glabrous or very indefinitely papillate externally, the tube 2–3 mm. long, 0.8–1.25 mm. in diameter at the base and 1.5–2.5 mm. in diameter at the orifice, the lobes obliquely oblong-lanceolate, 4–4.5 mm. long, spreading; anthers glabrous, wholly exserted; nectaries somewhat shorter than the ovary; follicles relatively slender, continuous or only slightly undulate, subparallel or somewhat tortuous to divaricate, 16–30 cm. long, glabrous.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Jamaica.

7. **Forsteronia peninsularis** Woodson, Ann. Mo. Bot. Gard. **22**: 215. 1935.

Fruticose liana; leaves firmly membranaceous to subcoriaceous, oblong-elliptic, 4.5–5.5 cm. long, 1.7–2.2 cm. broad, narrowly acute to acuminate, obtuse at the base, glabrous, opaque, not glandular, the secondary veins relatively distant, broadly arcuate, the petioles 5–8 mm. long; inflorescence subthyrsiform, broadly pyramidal, terminal, somewhat shorter than the leaves, bearing numerous small greenish-white flowers; pedicels 2–2.5 mm. long, minutely puberulent-papillate; calyx-lobes ovate, obtuse, 1.5 mm. long, puberulent-papillate; corolla subrotate, minutely puberulent-papillate externally, the tube 2 mm. long, about 0.8 mm. in diameter at the base, 1–1.25 mm. in diameter at the orifice, the lobes obliquely oblong-elliptic, 4-4.25 mm. long, spreading; anthers glabrous, wholly exserted; nectaries about half as long as the ovary; follicles unknown.

TYPE LOCALITY: Maskall, Northern River, British Honduras.
DISTRIBUTION: Known only from the type locality.

8. **Forsteronia portoricensis** Woodson, Ann. Mo. Bot. Gard. **21**: 618. 1934.

Fruticose liana; leaves coriaceous, oblong-elliptic to oval, 3.2–9 cm. long, 1.3–4.7 cm. broad, very shortly and abruptly acuminate to acute or obtusish, broadly obtuse at the base, glabrous, eglandular above, the secondary veins arcuate and relatively distant, the petioles 4–6 mm. long; inflorescence aggregate-dichasial, terminal, about equaling the leaves or somewhat shorter, bearing many small, red or flesh-colored flowers; pedicels 2–3 mm. long, papillate to puberulent-papillate; calyx-lobes ovate, acute to obtuse, 1.8–3 mm. long, minutely papillate to essentially glabrous; corolla subrotate, the tube 1.5–2 mm. long, 1.2–1.5 mm. in diameter at the base, 1.8–2 mm. in diameter at the orifice, glabrous externally, the lobes oblong-ligular, 4–5 mm. long, essentially glabrous, spreading; anthers glabrous, wholly exserted; nectaries about equaling the ovary; follicles slender, acuminate, somewhat flexuous, reflexed-divaricate, more or less falcate, 14–19 cm. long, glabrous.

TYPE LOCALITY: Candelero, near Humacao, Puerto Rico.
DISTRIBUTION: Puerto Rico.

9. **Forsteronia corymbosa** (Jacq.) G. Meyer, Fl. Esseq. 134. 1818.

Echites corymbosa Jacq. Enum. Pl. Carib. 13. 1760.
Periploca umbellata Aubl. Pl. Guian. 273. 1775. [*Fide* Urban.]
Parsonsia corymbosa R. Br.; R. & S. Syst. Veg. 4: 402. 1819.
Thyrsanthus corymbosus Miers, Apoc. S. Am. 97. 1878.

Fruticose liana; leaves coriaceous, obovate to broadly oval, 3–7 cm. long, 1–3.5 cm. broad, obtuse to rounded at the apex, or very shortly and abruptly submucronulate-acuminate, broadly obtuse at the base, eglandular above, wholly glabrous, or minutely barbellate in the axils of the lateral veins beneath, these relatively distant, arcuate, the petioles 3–11 mm. long; inflorescence aggregate-dichasial, terminal, about as long as the leaves or somewhat shorter, bearing numerous small red flowers; pedicels 2–5 mm. long, minutely puberulent-papillate to glabrous; calyx-lobes ovate, obtuse, 1.7–2.5 mm. long, papillate to glabrous externally; corolla subrotate, the tube 1.9–2.5 mm. long, 1–1.25 mm. in diameter at the base and 1.25–2.5 mm. in diameter at the orifice, glabrous externally, the lobes oblong-lingulate, 4–5 mm. long, minutely papillate within, spreading; anthers glabrous, wholly exserted; nectaries about as long as the ovary; follicles rather short and stout, sharply divaricate, rigid and nearly straight, not acuminate, 11–14 cm. long, glabrous.

TYPE LOCALITY: [Hispaniola.]
DISTRIBUTION: Cuba and Hispaniola.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 30;* Jacq. Sel. Stirp. Pict. *pl. 37.*

29. **SECONDATIA** A. DC. in DC. Prodr. 8: 445. 1844.

Orthechites Urban, Symb. Ant. 6: 36. 1909.

Fruticose lianas, or some species apparently becoming erect shrubs. Leaves opposite, not glandular. Inflorescence terminal, or both terminal and lateral, thyrsiform, several-flowered. Calyx 5-parted nearly to the receptacle, the lobes equal or subequal, imbricate, bearing within alternate, solitary or paired squamellae. Corolla salverform, small or medium-sized, exappendiculate within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing many ovules, surrounded at the base by 5 separate or more or less concrescent nectaries; stigma fusiform, sessile or with a short style. Follicles 2, separate, broadly fusiform; seeds numerous, truncate, comose at the apex.

Type species, *Secondatia densiflora* A. DC.

1. **Secondatia Macnabii** (Urban) Woodson, Ann. Mo. Bot. Gard. 19: 385. 1932.

Orthechites Macnabii Urban, Symb. Ant. 6: 37. 1909.

Shrub, apparently erect, essentially glabrous throughout; leaves firmly membranaceous, lanceolate to oblong-lanceolate, 5–7 cm. long, 1.3–2.3 cm. broad, acuminate at the apex, acute to obtuse at the base, the petioles 3–4 mm. long; inflorescence subcorymbose, terminal, bearing 3–6 small white flowers; pedicels 3–4 mm. long; calyx-lobes ovate, 2 mm. long, minutely ciliolate; corolla salverform, glabrous externally, the tube about 15 mm. long, about 1.5 mm. in diameter at the base, the lobes obliquely elliptic, 7–8 mm. long, spreading; follicles unknown.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Known only from the type locality.

30. **TRACHELOSPERMUM** Lemaire, Jard. Fleur. 1: *pl. 61.* 1851.

Suffruticose lianas. Leaves opposite, eglandular. Inflorescence thyrsiform, alternate-axillary (in our species). Calyx 5-parted nearly to the receptacle, the lobes essentially equal, somewhat imbricate, bearing within alternate pairs of alternate squamellae (in our species). Corolla salverform, not appendaged within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connec-

tive. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 separate or more or less concrescent nectaries; stigma fusiform, borne upon an elongate style. Follicles 2, separate, slender, terete; seeds many, truncate, comose.

Type species, *Rhynchospermum jasminoides* Lindl.

1. **Trachelospermum difforme** (Walt.) A. Gray, Syn. Fl. N. Am. **2**[1]: 85. 1878.

Echites difformis Walt. Fl. Car. 98. 1788.
Echites puberula Michx. Fl. Bor. Am. 1: 120. 1803.
Tabernaemontana populifolia Poir. in Lam. Encyc. Suppl. 5: 276. 1817.
? *Echites tomentosa* Raf. Fl. Ludov. 46. 1817. Not *E. tomentosa* Vahl. 1794.
Echites salicifolia Raf. New Fl. 4: 59. 1838. Not *E. salicifolia* Willd. 1819.
Forsteronia difformis A. DC. in DC. Prodr. 8: 437. 1844.
Thyrsanthus populifolius Miers, Apoc. S. Am. 99. 1878.
Thyrsanthus difformis Miers, Apoc. S. Am. 99. 1878.

Fruticose or suffruticose liana, glabrous to variously puberulent; leaves extremely variable, and not infrequently heterophyllous on a single plant, thinly membranaceous, elliptic to obovate-elliptic, occasionally linear-elliptic or suborbicular, 2.5–12 cm. long, 0.4–7.5 cm. broad, acuminate, occasionally very shortly and abruptly so, acute to obtuse, or sometimes rounded at the base, the petioles 1–15 mm. long; inflorescence thyrsiform, alternate-axillary, bearing numerous small pale-yellow flowers; pedicels 4–7 mm. long; calyx-lobes ovate-lanceolate, acuminate, 3–4 mm. long, minutely and rather sparsely barbellate at the tips; corolla salverform or subinfundibuliform, the tube 5.5–6.5 mm. long, 0.8–1 mm. in diameter at the base, somewhat inflated at the orifice, the lobes obliquely obovate, 3–4 mm. long, spreading; follicles slender, obscurely undulate-articulate to essentially continuous, 15–23 cm. long, glabrous.

TYPE LOCALITY: [South] Carolina.
DISTRIBUTION: Southeastern coastal plain of the United States from Delaware to Texas, and northward in the Mississippi Valley to eastern Oklahoma, southeastern Missouri, southern Illinois, and southwestern Indiana.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 2899;* ed. 2. *f. 3382.*
NOTE: In addition to the preceding, *Trachelospermum jasminoides* (Lindl.) Lemaire is frequently found in cultivation. It is distinguished from *T. difforme* superficially by its stouter, usually ferruginous-hirtellous stems, its more or less coriaceous foliage, and its larger, cream-colored flowers.

31. **MALOUETIA** A. DC. in DC. Prodr. **8**: 378. 1844.

Robbia A. DC. in DC. Prodr. 8: 444. 1844.

Shrubs or small trees. Leaves opposite, not glandular, the lower surface usually bearing a single pit in the axils of the secondary veins. Inflorescence umbellate, terminal, or occasionally also lateral, bearing several small or medium-sized flowers. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, bearing within alternate, solitary or paired squamellae. Corolla salverform, not appendaged within, frequently somewhat thickened at the orifice, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective, usually more or less exserted. Ovary apocarpous, containing many ovules, surrounded at the base by 5 separate or more or less concrescent nectaries; stigma fusiform. Follicles separate, narrowly terete to broadly fusiform; seeds numerous, dry, not comose.

Type species, *Cameraria Tamaquarina* Aubl.

Anthers inserted near the orifice of the corolla-tube, conspicuously exserted. 1. *M. cubana.*
Anthers inserted near or below the middle of the corolla-tube, included, or essentially so. 2. *M. guatemalensis.*

1. **Malouetia cubana** A. DC. in DC. Prodr. **8**: 379. 1844.

Malouetia retroflexa Muell.-Arg. Linnaea **30**: 408. 1860.

Leaves opposite, membranaceous, oblong-elliptic, 5–11 cm. long, 1.5–4.5 cm. broad, shortly and obtusely subcaudate-acuminate, obtuse to broadly acute at the base, glabrous throughout, the petioles 1.5–5 mm. long; umbels terminal, bearing relatively few greenish-white (?) flowers; pedicels 20–25 mm. long, glabrous; calyx-lobes lanceolate to ovate-lanceolate, acuminate,

spreading at anthesis, 3–4.5 mm. long, rather thinly membranaceous, glabrous externally, minutely and sparsely puberulent toward the tips within; corolla salverform, glabrous externally, the tube broadly flask-shaped, 8–10 mm. long, about 1–1.5 mm. in diameter at the base, dilated to about 2.5 mm. in diameter below the middle, the faucal tube 0.5 mm. long, about 1.5 mm. in diameter at the orifice, the lobes obliquely lanceolate to ovate-lanceolate, acuminate, 9–12 mm. long, spreading; anthers inserted near the orifice of the corolla-tube, conspicuously exserted, minutely puberulent dorsally; nectaries less than half as long as the ovary; follicles unknown.

TYPE LOCALITY: Cuba.
DISTRIBUTION: Cuba; St. Vincent.
NOTE: Only one collection of this species is known from St. Vincent; the type specimen from Cuba has presumably been lost, and the species has not been collected since.

2. **Malouetia guatemalensis** (Muell.-Arg.) Standley, Jour. Wash. Acad. **15**: 459. 1925.

Stemmadenia guatemalensis Muell.-Arg. Linnaea **30**: 410. 1860.
Malouetia panamensis Van Heurck & Muell.-Arg. in Van Heurck, Obs. Bot. 185. 1871.

Small tree, 5–10 m. tall or more; leaves firmly membranaceous, oblong-elliptic to ovate-elliptic, 6–25 cm. long, 2–10 cm. broad, obtusely subcaudate-acuminate, obtuse at the base, glabrous throughout, the petioles 5–10 mm. long; umbels terminal, or frequently also lateral, bearing relatively numerous small greenish-white flowers; pedicels 3–5 mm. long, glabrous to very minutely papillate; calyx-lobes ovate, acute to obtuse, subcoriaceous, closely imbricate, 1.5–2.5 mm. long, minutely puberulent-papillate on both sides; corolla salverform, glabrous externally, or very minutely papillate toward the orifice, the tube 4–5.5 mm. long, 1.25–1.5 mm. in diameter at the base, abruptly contracted near the middle at the insertion of the stamens, the lobes obliquely lanceolate to ovate-oblong, acuminate, 7–12 mm. long, widely spreading; anthers included, minutely puberulent-papillate dorsally; nectaries about as long as the ovary or slightly shorter; follicles stout, fusiform, rigidly divaricate, 10–13 cm. long, 1–2 cm. in diameter, glabrous.

TYPE LOCALITY: "Mniogalpa," Guatemala.
DISTRIBUTION: British Honduras and Guatemala to Panama.

32. **NERIUM** L. Sp. Pl. 209. 1753.

Shrubs or small trees. Leaves verticillate, usually ternate, rarely quaternate, or sometimes opposite, coriaceous, not glandular. Inflorescence terminal, thyrsiform, bearing numerous conspicuous flowers. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, more or less imbricate, bearing numerous squamellae at the base within. Corolla infundibuliform, the throat bearing near the orifice within rather conspicuous, predominantly 5-cleft, petaloid appendages, the limb regularly 5-parted, dextrorsely contorted. Anthers somewhat exserted at the tips, connivent and agglutinated to the stigma, with an enlarged, basally 2-lobed, apically appendiculate connective. Ovary apocarpous, containing many ovules, without a nectary; stigma fusiform. Follicles 2, separate, relatively stout; seeds compressed, densely puberulent, comose at the apex.

Type species, *Nerium Oleander* L.

1. **Nerium Oleander** L. Sp. Pl. 209. 1753.

Shrub or small tree, as much as 5 m. tall, essentially glabrous; leaves opposite or in whorls of 3 or 4, very shortly petiolate, coriaceous, oblong-lanceolate, 2–30 cm. long, 0.5–3.5 cm. broad, acuminate, narrowly cuneate at the base, lustrous above; inflorescence subcorymbose, much surpassing the foliage, bearing few to numerous showy flowers of variable color, ranging from scarlet to yellowish-pink or white, and frequently double; calyx-lobes lanceolate to ovate-lanceolate, acuminate, 4–6 mm. long, somewhat foliaceous; corolla infundibuliform, glabrous externally, the tube proper 8–12 mm. long, about 1.5 mm. in diameter at the base, the throat

conic-campanulate, 9–10 mm. long, about 7 mm. in diameter at the orifice, the lobes obliquely obovate to obovate-oblong, 20–25 mm. long, spreading; follicles relatively stout, 8–15 cm. long.

TYPE LOCALITY: Crete.
DISTRIBUTION: Native of the Mediterranean region and the Orient; widely naturalized in tropical North America.
ILLUSTRATIONS: Lam. Tab. Encyc. *pl. 174;* Bot. Cab. *pl. 666;* Schnizl. Ic. *pl. 132, f. 17–23, 40;* Baill. Hist. Pl. **10**: *f. 133–141;* E. & P. Nat. Pfl. 4²: 176. *f. 59, N, O;* Stand. Cycl. Hort. *f. 2476.*

33. **NEOBRACEA** Britton; Britton & Millsp. Bahama Fl. 335. 1920.

Bracea Britton, Bull. N. Y. Bot. Gard. **3**: 448. 1905. Not *Bracea* King. 1898.

Shrubs or small trees. Leaves opposite, petiolate, not glandular. Inflorescence terminal, or less frequently subterminal or lateral, bearing few to several, infundibuliform flowers of medium size. Calyx 5-parted nearly to the receptacle, the lobes equal or subequal, imbricate, the squamellae alternate, solitary or paired, occasionally scarcely manifest or obsolete. Corolla infundibuliform, the tube exappendiculate within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 separate or somewhat concrescent nectaries; stigma fusiform-capitate. Follicles 2, separate, terete, acuminate; seeds dry, truncate, comose at the apex.

Type species, *Bracea bahamensis* Britton.

Plants glabrous throughout; calyx-lobes rather conspicuously foliaceous, ovate to ovate-oblong. — 1. *N. Valenzuelana.*
Plants more or less conspicuously pubescent throughout; calyx-lobes scarious or only slightly foliaceous, ovate to oblong-triangular.
  Inflorescence corymbose, the peduncle equaling or surpassing the pedicels. — 2. *N. angustifolia.*
  Inflorescence umbellate or subumbellate, or 1-flowered, the peduncle manifestly shorter than the pedicels.
    Follicles 15–25 cm. long; squamellae obsolete or very inevident; Bahama Islands. — 3. *N. bahamensis.*
    Follicles 5–7 cm. long; squamellae obsolete; Cuba. — 4. *N. Ekmanii.*

1. **Neobracea Valenzuelana** (A. Rich.) Urban, Symb. Ant. **9**: 241. 1924.

Echites Valenzuelana A. Rich. in Sagra, Hist. Cuba **11**: 93. 1850.
Rhabdadenia Wrightiana Muell.-Arg. Linnaea **30**: 438. 1860.
Angadenia Wrightiana Miers, Apoc. S. Am. 181. 1878.
Mandevilla Wrightiana Benth. & Hook.; B. D. Jackson, Ind. Kew. **2**: 700, 1291. 1895.

Shrub or small tree, 1–8 m. tall, glabrous throughout; leaves coriaceous or subcoriaceous, obovate to oblong-lanceolate, 2.5–6 cm. long, 0.8–2 cm. broad, rounded and usually minutely emarginate, narrowly cuneate at the base, somewhat lustrous above, paler and opaque beneath, the petioles 5–7 mm. long; inflorescence terminal, or occasionally pseudoterminal, subumbellate, bearing 1–5 pale-rose-colored flowers; peduncles 2–8 mm. long; pedicels 20–25 mm. long; calyx-lobes ovate to ovate-oblong, obtuse to broadly acute, 3–5 mm. long, rather conspicuously foliaceous, the squamellae in alternate groups of 2–4; corolla infundibuliform, the tube proper 4–5 mm. long, about 1.5 mm. in diameter at the base, the throat broadly conic, 8–9 mm. long, 6–6.5 mm. in diameter at the orifice, the lobes obliquely obovate-dolabriform, 14–15 mm. long, spreading; nectaries about half as long as the ovary; follicles relatively slender and flexile, very obscurely articulate, 11–15 cm. long.

TYPE LOCALITY: Vuelta de Abajo [Havana], Cuba.
DISTRIBUTION: Cuba.

2. **Neobracea angustifolia** Britton, Bull. Torrey Club **53**: 462. 1926.

Shrub; leaves firmly membranaceous, narrowly oblong-elliptic, 5–7 cm. long, 0.7–1.3 cm. broad, acute to obtuse, rather narrowly cuneate at the base, softly and rather densely puberulent on both sides, the petioles 3–5 mm. long; inflorescence alternate-axillary, bearing 8–20

small purplish (?) flowers; peduncles minutely puberulent, somewhat shorter than the subtending leaves; pedicels 4–5 mm. long, minutely puberulent; calyx-lobes rather narrowly triangular, acute to acuminate, 2–2.5 mm. long, minutely puberulent externally, the solitary alternate squamellae extremely minute; corolla minutely and rather sparsely puberulent externally, the tube proper 3–3.5 mm. long, about 1.25 mm. in diameter at the base, the throat conic-campanulate, 3.5–4 mm. long, about 4 mm. in diameter at the orifice, the lobes oblong-dolabriform, 7–7.25 mm. long, spreading; nectaries less than half as long as the ovary; follicles unknown.

TYPE LOCALITY: Between Santa Cruz and Los Caguelos, Pinar del Rio, Cuba.
DISTRIBUTION: Western Cuba.

3. **Neobracea bahamensis** (Britton) Britton; Britton & Millsp. Bahama Fl. 335. 1920.

Bracea bahamensis Britton, Bull. N. Y. Bot. Gard. 3: 448. 1905.

Shrub or small tree; leaves coriaceous or subcoriaceous, broadly elliptic to oblong-oblanceolate, 1.5–10 cm. long, 0.5–2.5 cm. broad, obtuse to rounded, rather narrowly cuneate at the base, yellowish-green, somewhat lustrous, and essentially glabrous above, paler and densely and minutely puberulent beneath, the petioles 2–6 mm. long; inflorescence terminal, or less frequently subterminal or lateral, umbellate or subumbellate, bearing 1–10 white, reddish-flushed flowers of medium size; pedicels 7–15 mm. long, minutely puberulent; calyx-lobes triangular, 2–3 mm. long, minutely puberulent externally, the squamellae obsolete or very inevident; corolla infundibuliform, minutely puberulent externally, the tube proper 1.5–1.7 mm. long, about 1 mm. in diameter at the base, the throat rather narrowly conic, 5–8 mm. long, about 3 mm. in diameter at the orifice, the lobes obliquely obovate, 15–18 mm. long, spreading; nectaries somewhat shorter than the ovary; follicles relatively slender and flexile, obscurely and distantly moniliform, 15–25 cm. long, glabrous.

TYPE LOCALITY: New Providence, Bahamas.
DISTRIBUTION: Bahamas.

4. **Neobracea Ekmanii** Urban, Symb. Ant. 9: 242. 1924.

Shrub or small tree; leaves coriaceous, elliptic to elliptic-oblong, 1–2 cm. long, 4–8 mm. broad, acute to obsoletely acuminate, or occasionally obtusish, cuneate at the base, glabrous and more or less lustrous above, opaque and minutely pilosulous beneath, the petioles 3–5 mm. long; inflorescence terminal, 1-flowered; peduncle 3–4 mm. long, essentially glabrous; pedicels 2–3 mm. long, minutely pilosulous; calyx-lobes linear-triangular, obtusish, about 2.5 mm. long, minutely pilosulous externally, the squamellae obsolete; corolla unknown; follicles terete, relatively stout, 5–7 cm. long, essentially glabrous.

TYPE LOCALITY: Near Maraví, Oriente, Cuba.
DISTRIBUTION: Known only from the type locality.

34. **ODONTADENIA** Benth. Jour. Bot. Hook. 3: 242. 1841.

Anisolobus A. DC. in DC. Prodr. 8: 395. 1844.
Cylicadenia Lemaire, Ill. Hortic. 2: Misc. 9. 1855.
Angadenia Miers, Apoc. S. Am. 173, in part. 1878.
Perictenia Miers, Apoc. S. Am. 182. 1878.
Mitozus Miers, Apoc. S. Am. 217, in part. 1878.
Codonechites Markg. Notizbl. Bot. Gart. Berlin 9: 80. 1924.

Fruticose or suffruticose lianas, very rarely becoming suberect. Leaves opposite, rarely alternate above, not glandular, stipulate or exstipulate. Inflorescence opposite-axillary, or terminal also, thyrsiform to simply scorpioid, bearing few to numerous, usually conspicuous flowers. Calyx 5-parted nearly to the receptacle, the lobes essentially equal to very conspicuously unequal, closely imbricate, bearing within 5 to many, alternate or indefinitely distributed squamellae. Corolla infundibuliform, or rarely subsalverform, the tube not appendaged within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing

numerous ovules, surrounded at the base by 5 nectaries, these usually closely concrescent and irregularly lobed or lacerate; stigma fusiform to subcapitate. Follicles 2, separate, terete or more or less flattened laterally; seeds numerous, dry, truncate, comose at the apex.

Type species, *Odontadenia speciosa* Benth.

Inflorescence thyrsiform; calyx-lobes very unequal, the outer conspicuously shorter; stipules present, caducous.
  Stamens inserted within the corolla-tube proper below the inflation of the throat; corolla densely and minutely velutinous-papillate externally, at least in the bud. — 1. *O. cognata.*
  Stamens inserted within the corolla-tube at the inflation of the throat; corolla glabrous externally. — 2. *O. Schippii.*
Inflorescence various, but not thyrsiform; calyx-lobes essentially equal; stipules absent or extremely minute.
  Inflorescence both terminal and lateral; nectary deeply and indefinitely multifid; anthers densely hirsutulous dorsally; Central America.
    Corolla 50–80 mm. long, its throat 12–18 mm. in diameter at the orifice. — 3. *O. grandiflora.*
    Corolla 45–50 mm. long, its throat about 6 mm. in diameter at the orifice. — 4. *O. caudigera.*
  Inflorescence lateral; nectary 5-lobed, the divisions entire or merely crenulate; anthers glabrous to papillate; Hispaniola. — 5. *O. polyneura.*

1. **Odontadenia cognata** (Stadelm.) Woodson, Ann. Mo. Bot. Gard. **18**: 546. 1931.

Echites cognata Stadelm. Flora 24: Beibl. 1: 79. 1841.
Anisolobus cognatus Muell.-Arg. in Mart. Fl. Bras. 6[1]: 113. 1860.
Angadenia cognata Miers, Apoc. S. Am. 176. 1878.
Odontadenia augusta Woodson, Ann. Mo. Bot. Gard. 18: 548. 1931.

Fruticose liana; leaves firmly membranaceous to chartaceous, broadly elliptic to oblong-elliptic, or occasionally obovate-elliptic, 8–17 cm. long, 3–9 cm. broad, acute to acuminate, obtuse to attenuate at the base, glabrous throughout, the petioles 9–20 mm. long; stipules 2, ovate-triangular, acuminate, 3–4 mm. long, caducous; inflorescence corymbose-thyrsiform, terminal, about equaling or somewhat surpassing the subtending leaves, bearing 20–50 handsome reddish-tinged flowers; pedicels 10–15 mm. long, densely and minutely puberulent; bracts 2–4 mm. long, caducous; calyx-lobes broadly ovate to ovate-oblong, obtuse or rounded, unequal, 5.5–8 mm. long, densely puberulent-papillate; corolla infundibuliform, densely and minutely velutinous-papillate externally, at least in the bud, the tube proper 12–20 mm. long, about 3.5 mm. in diameter at the base, the throat narrowly conic to conic-campanulate, 20–30 mm. long, 5–10 mm. in diameter at the orifice, the lobes broadly dolabriform, 15–18 mm. long, spreading; anthers inserted below the inflation of the corolla-throat, papillate dorsally; nectaries somewhat shorter than the ovary; mature follicles unknown.

TYPE LOCALITY: Forests of the Japurá, Amazonas, Brazil.
DISTRIBUTION: Eastern Panama; also in northern Brazil and adjacent Peru.
ILLUSTRATION: Mart. Fl. Bras. 6[1]: *pl. 34.*

2. **Odontadenia Schippii** Woodson, Ann. Mo. Bot. Gard. **22**: 292. 1935.

Fruticose liana, as much as 19 meters long; leaves opposite, firmly membranaceous, broadly elliptic to oval, 6.5–12 cm. long, 3–5.5 cm. broad, shortly and obtusely acuminate, obtuse at the base, wholly glabrous, somewhat lustrous above, the petioles 10–15 mm. long; inflorescence both terminal and opposite-axillary, thyrsiform, about as long as the leaves or somewhat longer, bearing several conspicuous creamy-white flowers; pedicels 20–25 mm. long, puberulent-papillate; calyx-lobes manifestly unequal, the outer broadly ovate, obtuse or rounded, 5–6 mm. long, coriaceous, densely and minutely puberulent-papillate externally, the inner broadly oblong, obtuse or rounded, 9–10 mm. long, sparsely puberulent within; corolla infundibuliform, glabrous externally, the tube proper 15–17 mm. long, 3.5–4 mm. in diameter at the base, the throat tubular-conic, 25–27 mm. long, about 5–6 mm. in diameter at the orifice, the lobes obliquely and broadly dolabriform, 13–15 mm. long, spreading; anthers inserted at the inflation of the corolla-tube, minutely hirtellous dorsally; nectaries about thrice longer than the ovary, concrescent throughout; follicles unknown.

TYPE LOCALITY: Camp 36, Guatemala-British Honduras survey, British Honduras; alt. 840 meters.
DISTRIBUTION: Known only from the type locality.

3. **Odontadenia grandiflora** (G. Meyer) Miq. Stirp. Surin. 166. 1851.

Echites grandiflora G. Meyer, Fl. Esseq. 131. 1818.
Echites macrantha R. & S. Syst. Veg. 4: 795. 1819. Not *E. macrantha* Spreng. 1825.
Echites Hoffmannseggiana Steud. Nom. Bot. ed. 2. 1: 539. 1840.
Odontadenia speciosa Benth. Jour. Bot. Hook. 3: 242. 1841.
? *Haemadictyon grandiflorum* A. DC. in DC. Prodr. 8: 426. 1844.
Echites sylvestris A. DC. in DC. Prodr. 8: 464. 1844.
Dipladenia Harrisii Purdie; Hook. Bot. Mag. *pl. 4825.* 1855.
Cylicadenia Harrisii Lemaire, Ill. Hortic. 2: Misc. 9. 1855.
Odontadenia sylvestris Muell.-Arg. in Mart. Fl. Bras. 6[1]: 117. 1860.
Odontadenia formosa Miers, Apoc. S. Am. 127. 1878.
Odontadenia Harrisii Miers, Apoc. S. Am. 128. 1878.
Angadenia sylvestris Miers, Apoc. S. Am. 174. 1878.
Odontadenia Hoffmannseggiana Woodson; Gleason & Smith, Bull. Torrey Club 60: 392. 1933.

Fruticose liana, wholly glabrous throughout; leaves firmly membranaceous or chartaceous, broadly elliptic to obovate-lanceolate, 13–22 cm. long, 4–10 cm. broad, rather abruptly and shortly subcaudate-acuminate, or the older ones infrequently acute, acute to obtuse at the base, the petioles 12–30 mm. long; inflorescence opposite-axillary or subterminal, dichasially cymose, frequently much reduced, about as long as the subtending leaves, bearing few to numerous, handsome, yellow, reddish-tinged, or orange-tinged flowers; pedicels 20–25 mm. long; bracts minutely ovate, persistent; calyx-lobes essentially equal, broadly ovate, obtuse, 4–6 mm. long; corolla infundibuliform, the tube proper 5–10 mm. long, 3–5 mm. in diameter at the base, conspicuously constricted at the insertion of the stamens, the throat conic, 25–35 mm. long, 12–18 mm. in diameter at the orifice, the lobes obliquely obovate, 20–35 mm. long, widely spreading; anthers inserted at the inflation of the corolla-throat, densely hirtellous dorsally; nectaries concrescent, indefinitely multifid, about half as long as the ovary; follicles relatively stout, 15–30 cm. long, 1–2 cm. in diameter, glabrous.

TYPE LOCALITY: Dutch Guiana.
DISTRIBUTION: Costa Rica and Panama; also in South America.
ILLUSTRATIONS: Bot. Mag. *pl. 4825;* Gard. Chron. III. 54: *f. 43.*

4. **Odontadenia caudigera** Woodson, Ann. Mo. Bot. Gard. 23: 384. 1936.

Fruticose liana, essentially glabrous throughout; leaves opposite, membranaceous, broadly elliptic, 14–23 cm. long, 7–11 cm. broad, acutely and shortly subcaudate-acuminate, broadly obtuse at the base, the petioles 20–25 mm. long; inflorescence terminal and opposite-axillary, obscurely compound, bearing 3–6 conspicuous cream-colored flowers; pedicels about 2 cm. long; bracts ovate, 2–3 mm. long, persistent; calyx-lobes broadly ovate, obtuse, 6–7 mm. long; corolla infundibuliform or subinfundibuliform, glabrous externally, the tube proper 8–9 mm. long, about 5 mm. in diameter at the base, abruptly constricted at the insertion of the anthers, the throat cylindric, 16–17 mm. long, about 6 mm. in diameter at the orifice, the lobes obovate-dolabriform, 20–21 mm. long, spreading; anthers inserted at the inflation of the corolla-throat, densely hirtellous dorsally; nectaries concrescent, deeply multifid, slightly longer than the ovary; follicles unknown.

TYPE LOCALITY: British Honduras.
DISTRIBUTION: Known only from the type locality.

5. **Odontadenia polyneura** (Urban) Woodson, Ann. Mo. Bot. Gard. 18: 546. 1931.

Rhabdadenia polyneura Urban, Symb. Ant. 7: 337. 1912.

Suffruticose liana, essentially glabrous throughout; leaves opposite, firmly membranaceous, oblong-elliptic to obovate-elliptic, 3.5–8 cm. long, 1–4 cm. broad, acute to acuminate, obtuse

to rounded at the base, somewhat lustrous above, the petioles 5–10 mm. long; stipules obsolete; inflorescence scorpioid, simple, opposite-axillary, somewhat longer than the leaves, bearing 6–10 white or cream-colored flowers; pedicels 9–10 mm. long; bracts ovate-lanceolate, 1–3 mm. long, caducous; calyx-lobes ovate, broadly acute, essentially equal, 3–4 mm. long; corolla infundibuliform, glabrous externally, the tube proper 4–5 mm. long, about 3 mm. in diameter at the base, the throat narrowly campanulate, 13–15 mm. long, about 7–8 mm. in diameter at the orifice, the lobes obliquely obovate, 15–17 mm. long, spreading; nectaries concrescent at the base, about half as long as the ovary, the 5 lobes entire or crenulate; follicles unknown.

TYPE LOCALITY: Loma del Hato, between Constanza and Rìo Jimenoa, Santo Domingo; alt. 1400 meters.

DISTRIBUTION: Hispaniola.

35. **ANGADENIA** Miers, Apoc. S. Am. 173. 1878; emend. Woodson, Ann. Mo. Bot. Gard. **23**: 191. 1936.

Suffruticose or suffrutescent subshrubs, usually more or less twining at the tips of the branches, or occasionally small lianas. Leaves opposite, not glandular. Inflorescence alternate-axillary, or infrequently terminal, scorpioid, simple or dichotomously divided at the base, bearing several, white or pale-yellow flowers of medium size. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, only slightly imbricate, bearing 1 or 2 alternate squamellae within. Corolla infundibuliform, the tube not appendaged within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 separate or more or less concrescent nectaries; stigma fusiform. Follicles 2, separate, terete; seeds dry, narrowly rostrate, comose at the apex.

Type species, *Echites Berterii* A. DC.

Corolla 37–45 mm. long, the throat tubular; inflorescence usually dichotomous below. 1. *A. Lindeniana.*

Corolla 25–34 mm. long, the throat conic to campanulate; inflorescence usually simple. 2. *A. Berterii.*

1. **Angadenia Lindeniana** (Muell.-Arg.) Miers, Apoc. S. Am. 180. 1878.

Rhabdadenia Lindeniana Muell.-Arg. Linnaea **30**: 437. 1860.
Rhabdadenia Lindeniana var. *angustifolia* Muell.-Arg. Linnaea **30**: 438. 1860.
Echites Lindeniana Griseb. Cat. Pl. Cub. 173. 1866.

Suffruticose or suffrutescent liana; leaves opposite, firmly membranaceous, broadly elliptic to oblong-lanceolate, 2–6.5 cm. long, 1.5–3 cm. broad, acuminate, obtuse at the base, glabrous throughout, or very sparsely pilosulous when young, the petioles 5–8 mm. long; inflorescence alternate-axillary, or infrequently subterminal, usually dichotomous below, about twice as long as the leaves, bearing 6–18 rather conspicuous cream-colored flowers; pedicels 10–12 mm. long, glabrous or essentially so; calyx-lobes ovate-lanceolate, acuminate, 3–4 mm. long, glabrous; corolla infundibuliform, glabrous externally, the tube proper 7–13 mm. long, about 2 mm. in diameter at the base, the throat tubular, 15–20 mm. long, 6–8 mm. in diameter at the orifice, the lobes obliquely obovate, 12–15 mm. long, spreading; nectaries more or less concrescent, nearly twice as long as the ovary; follicles unknown.

TYPE LOCALITY: Cuba; alt. 360–900 meters.
DISTRIBUTION: Eastern Cuba and Jamaica.

2. **Angadenia Berterii** (A. DC.) Miers, Apoc. S. Am. 180. 1878.

Echites Berterii A. DC. in DC. Prodr. **8**: 447. 1844.
Echites Sagraei A. DC. in DC. Prodr. **8**: 450. 1844.
Echites ferruginea A. Rich. in Sagra, Hist. Cuba **11**: 92. 1850.
Rhabdadenia Berterii Muell.-Arg. Linnaea **30**: 435. 1860.
Rhabdadenia Sagraei Muell.-Arg. Linnaea **30**: 435. 1860.
Rhabdadenia cubensis Muell.-Arg. Linnaea **30**: 435. 1860.

Echites cubensis Griseb. Cat. Pl. Cub. 172. 1866.
Angadenia Sagraei Miers, Apoc. S. Am. 181. 1878.
Angadenia havanensis Miers, Apoc. S. Am. 181. 1878.
Angadenia cubensis Miers, Apoc. S. Am. 182. 1878.
Secondatia ferruginea Miers, Apoc. S. Am. 227. 1878.
Rhabdadenia corallicola Small, Bull. N. Y. Bot. Gard. 3: 434. 1905.

Suffrutescent subshrub, erect, suberect, or more or less twining; leaves opposite, membranaceous to subcoriaceous, ovate-elliptic to oblong-linear, 1–7 cm. long, 0.3–2 cm. broad, acuminate to obtuse, or frequently mucronulate, obtuse or rarely obscurely cordate at the base, glabrous and usually somewhat lustrous above, beneath opqaue, glabrous to minutely puberulent along the midrib, the petioles 1–5 mm. long, or occasionally scarcely manifest; inflorescence alternate-axillary in twining plants, subterminal to terminal in erect or suberect plants, scorpioid, usually simple, infrequently dichotomous below, bearing 5–30 cream-colored or yellowish flowers of moderate size; pedicels 10–15 mm. long, glabrous to very minutely puberulent; calyx-lobes ovate-lanceolate, acuminate, 3–5 mm. long, glabrous to very minutely puberulent-papillate externally; corolla infundibuliform, glabrous externally, the tube proper 5–8 mm. long, about 2 mm. in diameter at the base, the throat broadly conic to campanulate, 10–15 mm. long, 5–9 mm. in diameter at the orifice, the lobes obliquely obovate-dolabriform to subreniform-dolabriform, 10–13 mm. long, spreading; nectaries concrescent or more or less distinct, about equaling the ovary; follicles slender, continuous, divaricate, 5–10 cm. long, glabrous.

TYPE LOCALITY: Hispaniola.
DISTRIBUTION: Southern peninsular Florida, Bahamas (New Providence), Cuba, and Santo Domingo.
ILLUSTRATION: Addisonia *pl. 137*.

36. **URECHITES** Muell.-Arg. Bot. Zeit. **18**: 22. 1860.

Chariomma Miers, Apoc. S. Am. 110. 1878.

Fruticose or suffruticose lianas. Leaves opposite or rarely subverticillate, not glandular. Inflorescence alternate-axillary to subterminal or terminal, scorpioid, simple, bearing few to numerous, handsome, yellowish or cream-colored flowers. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, imbricate, bearing within at the base paired alternate, or numerous indefinitely distributed squamellae. Corolla infundibuliform, the tube not appendaged within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed, usually apically appendiculate connective. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 distinct or concrescent nectaries; stigma fusiform-capitate. Follicles 2, separate; seeds dry, narrowly rostrate, comose at the apex, mingled with subtending, subscaphiform, placental chaff at dehiscence.

Type species, *Vinca suberecta* Jacq.

Calyx-lobes linear-lanceolate, acuminate, usually equaling or slightly surpassing the corolla-tube. 1. *U. lutea.*
Calyx-lobes ovate, obtuse, much shorter than the tube of the corolla. 2. *U. Andrieuxii.*

1. **Urechites lutea** (L.) Britton, Bull. N. Y. Bot. Gard. **5**: 316. 1907.

Vinca lutea L. Cent. Pl. **2**: 12. 1756.
Echites suberecta Jacq. Enum. Pl. Carib. 13. 1760.
Echites domingensis Jacq. Ic. Pl. Rar. **1**: 6. 1786.
Echites heterophylla J. F. Gmel. Syst. Nat. **2**: 437. 1791.
Echites barbata Desv.; Hamilt. Prodr. 30. 1825.
Echites Catesbaei G. Don, Gen. Hist. **4**: 74. 1838.
Haemadictyon suberectum G. Don, Gen. Hist. **4**: 83. 1838.
Neriandra suberecta A. DC. in DC. Prodr. **8**: 422. 1844.
Dipladenia flava Hook. Bot. Mag. *pl. 4702*. 1853.
Echites Andrewsii Chapm. Fl. S. U. S. 359. 1860.
Urechites Jaegeri Muell.-Arg. Linnaea **30**: 443. 1860.
Urechites suberecta Muell.-Arg. Linnaea **30**: 444. 1860.
Urechites suberecta var. *glabrata* Muell.-Arg. Linnaea **30**: 444. 1860.
Urechites suberecta var. *rotundifolia* Muell.-Arg. Linnaea **30**: 444. 1860.
Echites Neriandra Griseb. Fl. Brit. W. Ind. 415. 1861.

Echites jamaicensis Griseb. Fl. Brit. W. Ind. 416. 1861.
Chariomma surrecta Miers, Apoc. S. Am. 111. 1878.
Chariomma domingensis Miers, Apoc. S. Am. 112. 1878.
Chariomma mucronulata Miers, Apoc. S. Am. 112. 1878.
Chariomma flava Miers, Apoc. S. Am. 113. 1878.
Chariomma verticillata Miers, Apoc. S. Am. 113. 1878.
Chariomma scandens Miers, Apoc. S. Am. 114. 1878.
Rhabdadenia laxiflora Miers, Apoc. S. Am. 120. 1878.
Rhabdadenia barbata Miers, Apoc. S. Am. 123. 1878.
Laseguea pubiflora Miers, Apoc. S. Am. 253. 1878.
Laseguea Jaegeri Miers, Apoc. S. Am. 254. 1878.
Echites obovata Sessé & Moc. Fl. Mex. 43. 1893. Not *E. obovata* Nees. 1840.
Urechites Andrewsii Small, Fl. SE. U. S. 936. 1903.
Urechites dolichantha Urban, Symb. Ant. **6**: 38. 1909.
Urechites pinetorum Small, Addisonia 4: 21. 1919.
Urechites lutea var. *angustifolia* Ekman & Helwig; Urban, Ark. Bot. **22A**[10]: 46. 1929.

Extremely variable, usually twining but occasionally suberect, glabrous to variously pubescent; leaves opposite or rarely subverticillate, membranaceous to subcoriaceous, oblong-linear to subrotund, 3–9 cm. long, 0.5–6 cm. broad, shortly acuminate to obtuse or rounded, obtuse to obscurely cordate at the base, glabrous to pilose on both sides, the petioles 2–12 mm. long; inflorescence alternate-axillary, occasionally subterminal or terminal, usually somewhat longer than the subtending leaves, usually more or less pilose, rarely glabrous, bearing few to several, handsome, yellowish or cream-colored flowers; pedicels 10–15 mm. long; bracts foliaceous, ovate to ovate-lanceolate, 2–8 mm. long; calyx-lobes linear-lanceolate, acuminate, 8–17 mm. long, usually more or less densely pilosulous, infrequently glabrate, the squamellae numerous, indefinitely distributed; corolla infundibuliform, glabrous to laxly pilose externally, the tube proper 6–15 mm. long, about 2 mm. in diameter at the base, the throat broadly tubular to tubular-subconic, 15–35 mm. long, 8–12 mm. in diameter at the orifice, the lobes obliquely obovate, 18–30 mm. long, spreading; nectaries essentially separate to more or less concrescent, about equaling the ovary; follicles relatively stout, continuous, 8–20 cm. long, glabrous to more or less pilosulous.

TYPE LOCALITY: "Carolina" [Bahamas!].
DISTRIBUTION: Southeastern peninsular Florida; Bahamas; Greater Antilles; Virgin Islands; Leeward Islands.
ILLUSTRATIONS: Bot. Mag. *pl. 1064, 4702;* Jard. Fleur. 4: *pl. 373;* Miers, Apoc. S. Am. *pl. 15, B;* Addisonia *pl. 131.*

2. **Urechites Andrieuxii** Muell.-Arg. Linnaea **30**: 442. 1860.

Suffruticose or fruticose liana; leaves opposite, membranaceous to subcoriaceous, oblong-elliptic to ovate-elliptic or obovate-elliptic, 5–12 cm. long, 2.5–7 cm. broad, rather shortly acuminate, obtuse or rounded at the base, glabrous above, glabrous to very finely puberulent beneath, the petioles 8–20 mm. long; inflorescence alternate-axillary, usually somewhat longer than the leaves, bearing few to several, handsome, cream-colored flowers; pedicels 15–22 mm. long, glabrous to very inconspicuously puberulent; bracts minute, scarious; calyx-lobes ovate, obtuse, 3–5 mm. long, essentially glabrous, the squamellae paired, alternate with the lobes; corolla infundibuliform, glabrous externally, the tube proper 10–15 mm. long, about 3 mm. in diameter at the base, the throat broadly tubular or subtubular, 25–30 mm. long, 5–8 mm. in diameter at the orifice, the lobes obliquely obovate, 15–23 mm. long, spreading; nectaries completely concrescent, about twice as long as the ovary; follicles relatively stout, continuous, glabrous.

TYPE LOCALITY: Near Tehuantepec, Oaxaca.
DISTRIBUTION: Oaxaca, Campeche, British Honduras, and Guatemala.

37. **PELTASTES** Woodson, Ann. Mo. Bot. Gard. **23**: 187. 1936.

Fruticose liana. Leaves large, opposite, peltate, not glandular. Inflorescence opposite-axillary, infrequently subterminal or terminal, aggregate-dichasial, bearing few to several, conspicuous flowers. Calyx 5-parted nearly to the receptacle, the lobes more or less unequal, imbricate, conspicuously foliaceous, bearing many, indefinitely distributed squamellae within. Corolla infundibuliform, the tube not appendaged within, the limb regularly 5-parted, dex-

trorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing numerous ovules, surrounded by 5 essentially separate nectaries at the base; stigma fusiform-subcapitate. Follicles 2, separate, relatively stout; seeds numerous, dry, rostrate, comose at the apex.

Type species, *Echites peltata* Vell.

1. **Peltastes isthmicus** Woodson, Ann. Mo. Bot. Gard. **23**: 187. 1936.

Stout fruticose liana; leaves peltate, firmly membranaceous, broadly ovate, 10–30 cm. long, 8–20 cm. broad, very abruptly and shortly acuminate, broadly rounded at the base, sparsely and inconspicuously puberulent-papillate to glabrate above, densely ferruginous-lanulose to glabrate beneath, the petioles 5–12 cm. long, densely ferruginous-tomentulose to glabrate; inflorescence about equaling the leaves, bearing 10–15 handsome yellowish flowers; pedicels 18–20 mm. long, densely and minutely ferruginous-lanulose; bracts foliaceous, oblong-spathiform, 8–17 mm. long; calyx-lobes oblong-obovate, shortly subcaudate-acuminate, 28–30 mm. long, inconspicuously ferruginous-puberulent at the base; corolla broadly infundibuliform, glabrous externally, the tube proper 23–25 mm. long, about 5 mm. in diameter at the base, the throat broadly campanulate, 20–23 mm. long, about 20 mm. in diameter at the orifice, the lobes obliquely obovate, 30–35 mm. long, spreading; anthers 12 mm. long, hirtellous dorsally; ovary glabrous, scarcely surpassing the nectaries; follicles stout, falcate, 22–25 cm. long, irregularly ferruginous-papillate.

TYPE LOCALITY: Near San Felix, Chiriquí, Panama.
DISTRIBUTION: Costa Rica and Panama.

38. **FERNALDIA** Woodson, Ann. Mo. Bot. Gard. **19**: 48. 1932.

Fruticose or suffruticose lianas. Leaves opposite, not glandular. Inflorescence alternate-axillary, simply scorpioid, bearing several, rather showy flowers. Calyx 5-parted nearly to the receptacle, the lobes equal to subequal, scarious or only slightly foliaceous, scarcely imbricate, bearing a solitary opposite squamella within. Corolla infundibuliform, the tube not appendaged within, the throat usually more or less closed by a thick villous indument, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, obtusely 2-lobed connective, the sporangia conspicuously protuberant basally. Ovary apocarpous, containing numerous ovules, surrounded at the base by 4 rather unequal, more or less concrescent nectaries; stigma fusiform-capitate. Follicles 2, separate; seeds numerous, dry, truncate, comose at the apex.

Type species, *Echites pandurata* A. DC.

Corolla glabrous externally, or essentially so, or the lobes occasionally ciliate, the throat broadly campanulate-conic, 9–12 mm. long. — 1. *F. pandurata*.
Corolla generally pilosulous externally, the throat narrowly conic, 16–18 mm. long. — 2. *F. brachypharynx*.

1. **Fernaldia pandurata** (A. DC.) Woodson, Ann. Mo. Bot. Gard. **19**: 48. 1932.

Echites pandurata A. DC. in DC. Prodr. **8**: 458. 1844.
Urechites Karwinskii Muell.-Arg. Linnaea **30**: 440. 1860.
Amblyanthera pandurata Muell.-Arg. Linnaea **30**: 448. 1860.
Angadenia pandurata Miers, Apoc. S. Am. 182. 1878.
Mandevilla velutina K. Schumann, in E. & P. Nat. Pfl. **4**^{2}: 171. 1895.
Mandevilla potosina Brand. Univ. Calif. Publ. Bot. **4**: 276. 1912.
Echites pinguifolia Standley, Field Mus. Publ. Bot. **8**: 35. 1930.

Fruticose or suffruticose liana, densely puberulent to glabrate throughout; leaves membranaceous, oblong-elliptic to broadly ovate, 4–13 cm. long, 1.5–8 cm. broad, shortly acuminate, the lowermost usually broadly cordate, the upper merely obtuse to subtruncate at the base, the petioles 1–2 cm. long; inflorescence usually somewhat shorter than the subtending leaves, bearing 8–18 rather showy, white to pale-greenish-yellow flowers; pedicels 4–6 mm. long,

minutely puberulent; bracts ovate, 1–2 mm. long; calyx-lobes ovate, acute to obtuse, 2–3 mm. long, minutely puberulent to papillate externally; corolla infundibuliform, essentially glabrous externally, or the lobes more or less ciliate, the tube proper 20–22 mm. long, about 1.5 mm. in diameter at the base, somewhat gibbous or arcuate at the insertion of the stamens, the throat broadly campanulate-conic, 9–12 mm. long, 7–9 mm. in diameter at the orifice, the lobes obliquely obovate, 10–13 mm. long, densely arachnoid-villous at the base within, spreading; follicles unknown.

TYPE LOCALITY: Near Oaxaca, Oaxaca.
DISTRIBUTION: Tamaulipas, San Luis Potosí, Vera Cruz, Guerrero, Oaxaca, and Yucatan; Salvador.
ILLUSTRATION: Ann. Mo. Bot. Gard. **23**: *pl. 5*.

2. **Fernaldia brachypharynx** Woodson, Ann. Mo. Bot. Gard. **19**: 380. 1932.

Fruticose or suffruticose liana, minutely puberulent to glabrate throughout; leaves membranaceous, broadly ovate, 7–10 cm. long, 5–7 cm. broad, shortly and abruptly acuminate, broadly rounded at the base, the petioles 9–20 mm. long; inflorescences somewhat shorter than the leaves, bearing few to several, rather showy, cream-colored flowers; pedicels 4–5 mm. long; bracts ovate, 1–2 mm. long; calyx-lobes ovate, acuminate, 2–3 mm. long, scarious or only slightly foliaceous, minutely pilosulous externally; corolla infundibuliform, generally pilosulous externally, the tube proper 18–20 mm. long, about 3 mm. in diameter at the base, the throat narrowly conic, 16–18 mm. long, about 7 mm. in diameter at the orifice, the lobes obliquely obovate, 12–14 mm. long, arachnoid-villous at the base within, spreading; follicles unknown.

TYPE LOCALITY: Between Escuintla and San José, Guatemala.
DISTRIBUTION: Guatemala.

39. **ECHITES** P. Br. Hist. Jam. 182. 1756.

Fruticose or suffruticose lianas. Leaves opposite, not glandular. Inflorescence a more or less modified dichasium, alternate-axillary, rarely subterminal or terminal, the flowers several, rarely solitary. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, somewhat imbricate, bearing within at the base a solitary, frequently deeply dissected, opposite squamella. Corolla salverform, the tube not appendaged within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly, or rarely obtusely 2-lobed connective, the sporangia inwardly protuberant at the base. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 separate or somewhat concrescent nectaries; stigma fusiform-subcapitate. Follicles 2, separate; seeds numerous, dry, rostrate, comose at the apex.

Type species, *Echites umbellata* Jacq.

Corolla 12–25 mm. long, the lobes narrowly oblong-lanceolate to elliptic-lanceolate; inflorescence relatively lax and many-flowered.
  Corolla-lobes shorter than the tube. 1. *E. tuxtlensis*.
  Corolla-lobes longer than the tube.
    Leaves elliptic; calyx-lobes 3–3.5 mm. long; corolla 20–25 mm. long; nectaries barbate at the tip. 2. *E. turbinata*.
    Leaves ovate or ovate-elliptic; calyx-lobes 1–1.5 mm. long; corolla 16–20 mm. long; nectaries glabrous. 3. *E. parviflora*.
Corolla 30–80 mm. long, the lobes obliquely obovate; inflorescence few-flowered to several-flowered, relatively compact.
Corolla-tube not spirally contorted; Central America.
  Inflorescence dichasial to simply helicoid, not subumbellate. 4. *E. turrigera*.
  Inflorescence subumbellate.
    Leaves coriaceous or subcoriaceous, more or less pandurate, conspicuously lustrous above, the veins verrucose. 5. *E. yucatanensis*.
    Leaves thinly membranaceous, not pandurate, at least the upper, opaque above, the veins not verrucose. 6. *E. elegantula*.
Corolla-tube spirally contorted; southern Florida, the Antilles, and locally in Yucatan and British Honduras. 7. *E. umbellata*.

1. **Echites tuxtlensis** Standley, Contr. U. S. Nat. Herb. **23**: 1164. 1924.

Suffruticose liana, glabrous throughout; leaves firmly membranaceous, pale-yellowish-green, narrowly lanceolate to obovate-elliptic, 6–10 cm. long, 1.5–3.5 cm. broad, acuminate, cuneate at the base, the petioles 3–8 mm. long; inflorescence a lax, repeatedly compound dichasium, bearing several to many, small, yellowish-green flowers, much surpassing the subtending leaves; pedicels 7–10 mm. long; calyx-lobes ovate-triangular, acute to acuminate, 1–1.5 mm. long; corolla salverform, the tube 8–10 mm. long, about 1 mm. in diameter at the base, the lobes oblong-lanceolate to elliptic-lanceolate, acuminate, somewhat shorter than the tube, reflexed at anthesis; nectaries about half as long as the ovary; follicles unknown.

TYPE LOCALITY: Tuxtla, Chiapas; alt. 720–840 meters.
DISTRIBUTION: Chiapas and British Honduras; Costa Rica.

2. **Echites turbinata** Woodson, Ann. Mo. Bot. Gard. **21**: 615. 1934.

Suffruticose or fruticose liana, essentially glabrous throughout; leaves firmly membranaceous, apparently somewhat succulent, elliptic, 7.5–12 cm. long, 3.5–7 cm. broad, acuminate, broadly obtuse at the base, the petioles 8–13 mm. long; inflorescences rather irregularly dichasial, about as long as the subtending leaves, bearing several, rather small, yellowish-green (?) flowers; pedicels 8–10 mm. long; calyx-lobes ovate, acuminate, 3–5 mm. long; corolla salverform, the tube 7–8 mm. long, about 1.5 mm. in diameter at the base, the lobes narrowly elliptic-lanceolate, long-acuminate, 14–16 mm. long; ovary somewhat longer than the barbate nectaries; follicles unknown.

TYPE LOCALITY: Rancho Flores, Costa Rica.
DISTRIBUTION: Known only from the type locality.

3. **Echites parviflora** Sessé & Moc. Fl. Mex. 44. 1893.

Suffruticose liana; leaves thinly membranaceous, ovate-elliptic to ovate, 3–7 cm. long, 1–2.5 cm. broad, acutely acuminate, rounded to obtuse at the base, glabrous throughout, the petioles 4–7 mm. long; inflorescences alternate-axillary, rather irregularly and repeatedly dichasial, about twice as long as the subtending leaves, bearing several to numerous, rather small, white or cream-colored flowers; pedicels 3–4 mm. long, glabrous; bracts ovate, minute; calyx-lobes ovate, acute, 1–1.5 mm. long, glabrous, the squamellae broadly ovate-deltoid, minutely erose; corolla salverform, essentially glabrous to minutely papillate externally, the tube 4.5–5.5 mm. long, about 1 mm. in diameter at the base, the lobes obliquely ovate-linear, narrowly acuminate, 12–14 mm. long, minutely papillate externally, densely puberulent within toward the base, widely spreading to reflexed; stamens inserted somewhat above the middle of the corolla-tube, the anthers 3.5 mm. long, glabrous; ovary about 1.5 mm. long, essentially glabrous; nectaries narrowly oblong, separate, about equaling or somewhat surpassing the ovary, glabrous; follicles unknown.

TYPE LOCALITY: Apatzingan [Michoacan].
DISTRIBUTION: Known only from the type locality.

4. **Echites turrigera** Woodson, Ann. Mo. Bot. Gard. **19**: 381. 1932.

Echites cincinnalis Woodson, Ann. Mo. Bot. Gard. **21**: 616. 1934.

Fruticose or suffruticose liana; leaves membranaceous, broadly oblong-elliptic to ovate-elliptic or obovate-elliptic, 5–15 cm. long, 3–10 cm. broad, rather shortly acuminate, obtuse to rounded, or rarely obscurely cordate at the base, wholly glabrous, the surface somewhat lustrous and the veins somewhat verrucose above, rather pale-yellowish-green, the petioles 8–40 mm. long, glabrous; inflorescence lateral to subterminal, almost perfectly dichasial to simply helicoid, somewhat surpassing the leaves, bearing 6–20, rather showy, white or cream-colored flowers, the peduncles minutely pilosulous-scabridulous to glabrate; pedicels 10–12

mm. long, minutely pilosulous-scabridulous to glabrate; bracts oblong-lanceolate, acuminate, somewhat foliaceous, 1–3 mm. long; calyx-lobes lanceolate, acuminate, 3–7 mm. long, rather sparsely pilosulous; corolla salverform, glabrous externally, the tube 28–38 mm. long, 1.5–2 mm. in diameter at the base, rather conspicuously and abruptly dilated somewhat below the middle at the insertion of the stamens, rather gradually constricted above toward the orifice, the lobes obliquely obovate, 15–20 mm. long, spreading; nectaries about half as long as the ovary; mature follicles unknown.

TYPE LOCALITY: Gualan, Guatemala; alt. 185 meters.
DISTRIBUTION: Guatemala and Nicaragua.

5. **Echites yucatanensis** Millsp.; Standley, Field Mus. Publ. Bot. **8**: 35. 1930.

Fruticose or suffruticose liana, wholly glabrous; leaves coriaceous to subcoriaceous, ovate to oblong, frequently irregularly pandurate, 7–12 cm. long, 2.5–7 cm. broad, acuminate, obtuse to rounded at the base, dark-green and lustrous above, the veins conspicuously verrucose, the petioles 1–2 cm. long; inflorescence lateral, subumbellate, bearing 3–9 greenish-yellow flowers, the peduncle glabrous, somewhat shorter than the subtending leaves; pedicels 10–13 mm. long; bracts minute, scarious, ovate-lanceolate; calyx-lobes ovate-lanceolate, acuminate, 1.8–2 mm. long; corolla salverform, the tube 40–45 mm. long, about 2 mm. in diameter at the base, abruptly dilated somewhat below the middle at the insertion of the stamens, gradually constricted above toward the orifice, the lobes obliquely obovate, 25–30 mm. long, spreading; nectaries less than half as long as the ovary; follicles relatively slender, rigidly divaricate, 16–25 cm. long, glabrous.

TYPE LOCALITY: Chichankanab, Yucatan.
DISTRIBUTION: Campeche and Yucatan.

6. **Echites elegantula** Woodson, Am. Jour. Bot. **22**: 686. 1935.

Fruticose or suffruticose liana, glabrous throughout; leaves rather thinly membranaceous, ovate-elliptic, 5–8 cm. long, 2–3.5 cm. broad, acutely subcaudate-acuminate, obtuse and somewhat decurrent at the base, opaque, the veins not verrucose above, the petioles 5–10 mm. long; inflorescence lateral, subumbellate, bearing 4–8 showy greenish-cream-colored flowers, the peduncle about half as long as the leaves; pedicels 15–20 mm. long; bracts linear, 2–3 mm. long; calyx-lobes lanceolate, acuminate, 3–5 mm. long, indistinctly papillate externally; corolla salverform, very minutely papillate externally, the tube 50–55 mm. long, about 1.5 mm. in diameter at the base, abruptly dilated somewhat below the middle at the insertion of the stamens, gradually constricted above toward the orifice, the lobes obliquely obovate, 30–35 mm. long, spreading; nectaries somewhat less than half as long as the ovary; follicles unknown.

TYPE LOCALITY: Chichen-Itza, Yucatan.
DISTRIBUTION: Known only from the type locality.

7. **Echites umbellata** Jacq. Enum. Pl. Carib. 13. 1760.

Tabernaemontana Echites L. Syst. Nat. ed. 10. 945. 1759.
Echites litorea H. B. K. Nov. Gen. & Sp. **3**: 212. 1819.
Echites umbellata var. *longiflora* Griseb. Cat. Pl. Cub. 172. 1866.
Echites obliqua Miers, Apoc. S. Am. 193. 1878.
Echites longiflora Miers, Apoc. S. Am. 194. 1878.
Echites Echites Britton; Small, Fl. Miami 147. 1913.

Fruticose or suffruticose liana, glabrous throughout; leaves firmly membranaceous, predominantly pale-yellowish-green, narrowly oblong-elliptic to suborbicular, 4–12 cm. long, 2–7.6 cm. broad, acuminate to rounded or somewhat retuse, narrowly cuneate to rounded at the base, the petioles 3–15 mm. long; inflorescences lateral to subterminal, somewhat shorter than the subtending leaves, bearing 2–7 conspicuous yellowish-cream-colored flowers, the peduncle manifest; bracts ovate to ovate-lanceolate, 1.5–3 mm. long, only slightly foliaceous; calyx-lobes ovate to narrowly oblong-triangular, acute to acuminate, 1.5–5 mm. long, scarious or only slightly foliaceous; corolla salverform, the tube 20–55 mm. long, 1.5–2 mm. in diameter at the base, somewhat dilated below the middle at the insertion of the stamens, above spirally

contorted and gradually constricted toward the orifice, the lobes obliquely obovate, 11–30 mm. long, spreading; nectaries from half as long to as long as the ovary; follicles relatively stout, rigidly divaricate, 9–26 cm. long, glabrous.

TYPE LOCALITY: [Antilles.]
DISTRIBUTION: Southern peninsular Florida, Bahamas, Cuba, and Hispaniola; Yucatan and British Honduras; also San Andres Island, Colombia.
ILLUSTRATION: Jacq. Sel. Stirp. Am. *pl. 22*.

Echites umbellata var. **crassipes** (A. Rich.) Maza, Anal. Soc. Esp. Hist. Nat. **23**: 274. 1895. *Echites crassipes* A. Rich. in Sagra, Hist. Cuba **11**: 91. 1850. *Rhodocalyx crassipes* Miers, Apoc. S. Am. 140. 1878. Leaves narrowly oblong-elliptic to nearly linear, 1–6 cm. long, 0.2–1.5 cm.broad; peduncle obsolete or scarcely manifest, the solitary flowers apparently sessile. TYPE LOCALITY: Near Havana, Cuba. DISTRIBUTION: Cuba.

DOUBTFUL OR EXCLUDED SPECIES

ECHITES ASPERA Mart. & Gal. Bull. Acad. Brux. **11**[1]: 359. 1844. This may possibly be *Mandevilla subsagittata* (R. & P.) Woodson. The type specimen, *Galeotti 1587*, has not been found, although special search for it was made in the principal collections of Europe and America.

ECHITES CHRISTOPHORIANA Hamilt. Prodr. 31. 1825. This may be *Mesechites repens* (Jacq.) Miers, as indicated by the small oval leaves, dichotomous lateral inflorescence, and small yellow flowers.

ECHITES (?) MACROCARPA A. Rich. in Sagra, Hist. Cuba **11**: 94. 1850. This is *Catalpa macrocarpa* (A. Rich.) Ekman; Urban, Symb. Ant. **9**: 254. 1924.

ECHITES (?) MURICATA A. DC. in DC. Prodr. **8**: 474. 1844. Based upon Descourt. Fl. Ant. **3**: 171. *pl. 189*. 1827. Evidently asclepiadaceous.

ECHITES OVALIFOLIA Poir. in Lam. Encyc. Suppl. **2**: 535. 1812. This was considered by Miers to be a *Forsteronia*. If so, it possibly represents *Forsteronia spicata* (Jacq.) G. Meyer, of which there are no authenticated specimens from Hispaniola.

40. ASKETANTHERA Woodson, Ann. Mo. Bot. Gard. **19**: 46. 1932.

Suffruticose or suffrutescent lianas. Leaves opposite, not glandular. Inflorescence alternate-axillary, simply scorpioid, bearing several conspicuous pedicellate flowers subtended by conspicuously foliaceous bracts. Calyx 5-parted nearly to the receptacle, the lobes subequal, distinctly foliaceous, bearing solitary opposite squamellae at the base within. Corolla salverform, the tube not appendaged within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing many ovules, surrounded at the base by 5 separate or more or less concrescent nectaries; stigma fusiform-capitate. Follicles 2, separate, terete; seeds numerous, dry, rostrate, comose at the apex.

Type species, *Echites calycosa* A. Rich.

Stamens inserted near the middle of the corolla-tube, the anthers barely included; Cuba. — 1. *A. calycosa.*
Stamens inserted near the base of the corolla-tube, the anthers deeply included; Hispaniola.
  Corolla 2–5 cm. long; inflorescence 8–20-flowered.
    Corolla 2–2.5 cm. long, the tube somewhat shorter than the calyx-lobes, essentially glabrous externally. — 2. *A. Picardae.*
    Corolla 4–5 cm. long, the tube conspicuously longer than the calyx-lobes, hispidulous externally. — 3. *A. dolichopetala.*
  Corolla 13–16 cm. long; inflorescence 2–8-flowered. — 4. *A. Ekmaniana.*

1. Asketanthera calycosa (A. Rich.) Woodson, Ann. Mo. Bot. Gard. **19**: 47. 1932.

Echites calycosa A. Rich. in Sagra, Hist. Cuba **11**: 94. 1850.
Rhodocalyx calycosus Miers, Apoc. S. Am. 140. 1878.
Echites Rugeliana Urban, Symb. Ant. **5**: 465. 1908.

Fruticose or suffruticose liana, densely ferruginous-hispidulous to glabrate throughout; leaves membranaceous, broadly ovate-elliptic, 8–15 cm. long, 5–9 cm. broad, acuminate, obtuse to rounded at the base, minutely strigillose to glabrate above, densely puberulent-pilosulous beneath, the petioles 7–10 mm. long; inflorescence subcorymbose, congested, about as long as the subtending leaves, bearing 5–12 pale-greenish-white or yellowish flowers of moderate size; pedicels 10–15 mm. long, densely hispidulous; bracts lanceolate, conspicuously foliaceous,

12–20 mm. long; calyx-lobes elliptic-lanceolate, acuminate, 10–20 mm. long, conspicuously foliaceous, rather sparsely pilose; corolla salverform, rather sparsely pilose externally, the tube 10–13 mm. long, about 2 mm. in diameter at the base, the lobes obliquely elliptic-oblanceolate, 30–45 mm. long, spreading; stamens inserted near the middle of the corolla-tube, the anthers barely included; nectaries about half as long as the ovary; follicles relatively stout, 25–30 cm. long, densely ferruginous-hispid.

TYPE LOCALITY: Near Santiago de Cuba.
DISTRIBUTION: Cuba.
ILLUSTRATION: Ann. Mo. Bot. Gard. **23**: *pl. 6.*

2. **Asketanthera Picardae** (Urban) Woodson, Ann. Mo. Bot. Gard. **19**: 47. 1932.

Echites Picardae Urban, Symb. Ant. **5**: 466. 1908.

Suffruticose or suffrutescent liana; leaves thinly membranaceous, ovate-elliptic, 8–15 cm. long, 3–9 cm. broad, acuminate, obtuse at the base, minutely strigillose to glabrate above, very minutely puberulent to glabrate beneath, the petioles 7–10 mm. long; inflorescence corymbose, somewhat shorter than the subtending leaves, bearing 8–20 greenish-yellow flowers of moderate size; pedicels 5–8 mm. long, minutely ferruginous-puberulent; bracts elliptic-lanceolate, acute to acuminate, 15–20 mm. long, conspicuously foliaceous; calyx-lobes elliptic-lanceolate, about equaling the bracts; corolla salverform, essentially glabrous externally, the tube 12–15 mm. long, about 1 mm. in diameter at the base, the lobes obliquely obovate-oblong, acute, 8–10 mm. long, spreading; stamens inserted near the base of the corolla-tube, the anthers deeply included; nectary about half as long as the ovary; follicles relatively slender, 30–45 cm. long, glabrous.

TYPE LOCALITY: Near Petionville, Haïti.
DISTRIBUTION: Haïti.

3. **Asketanthera dolichopetala** (Urban) Woodson, Ann. Mo. Bot. Gard. **19**: 47. 1932.

Echites dolichopetala Urban, Symb. Ant. **7**: 335. 1912.

Fruticose or suffruticose liana, densely and minutely ferruginous-hispidulous to glabrate throughout; leaves ovate-elliptic, 6–10 cm. long, 4–6 cm. broad, abruptly acuminate, rather abruptly obtuse at the base, the petioles 15–20 mm. long; inflorescence corymbose, about equaling or somewhat longer than the leaves, bearing 8–12 congested greenish-cream-colored flowers; pedicels 5–8 mm. long; bracts broadly lanceolate, 10–15 mm. long, conspicuously foliaceous; calyx-lobes broadly lanceolate, acuminate, 12–17 mm. long, distinctly foliaceous; corolla salverform, densely ferruginous-hispidulous externally, the tube 15–22 mm. long, about 2 mm. in diameter at the base, the lobes obliquely obovate-lanceolate, acute, 25–27 mm. long, spreading; anthers inserted near the base of the corolla-tube, wholly included; nectaries somewhat shorter than the ovary; follicles unknown.

TYPE LOCALITY: Near Barahona, on the road to Maniel, southern Santo Domingo; alt. 100 meters.
DISTRIBUTION: Santo Domingo.

4. **Asketanthera Ekmaniana** Woodson, Ann. Mo. Bot. Gard. **23**: 267. 1936.

Echites longiflora Ekman & Helwig; Urban, Ark. Bot. **22A**[10]: 45. 1929. Not *E. longiflora* Desf. 1819.
Asketanthera longiflora Woodson, Ann. Mo. Bot. Gard. **19**: 47. 1932.

Suffruticose or suffrutescent liana; leaves thinly membranaceous, ovate to broadly elliptic-lanceolate, 9–14 cm. long, 4–8 cm. broad, acuminate, obtuse at the base, essentially glabrous above, very minutely puberulent-papillate to glabrate beneath, the petioles 5–8 mm. long; inflorescence corymbose, somewhat shorter than the subtending leaves, bearing 2–8 very conspicuous, greenish-white or cream-colored flowers; pedicels 10–12 mm. long, essentially glabrous; bracts broadly elliptic-lanceolate, 15–20 mm. long, conspicuously foliaceous; calyx-

lobes broadly elliptic-lanceolate, acuminate, 20–25 mm. long, manifestly foliaceous; corolla glabrous externally, the tube 70–80 mm. long, about 2 mm. in diameter at the base, the lobes obliquely elliptic-lanceolate, 60–80 mm. long, spreading; anthers inserted near the base of the corolla-tube, deeply included; nectaries less than half as long as the ovary; follicles unknown.

TYPE LOCALITY: Between Banane and Gros Figuier, Barahona, Santo Domingo; alt. 500 meters.
DISTRIBUTION: Hispaniola.

41. **THENARDIA** H. B. K. Nov. Gen. & Sp. **3**: 209. 1819.

Suffruticose or suffrutescent lianas. Leaves opposite, not glandular. Inflorescence an alternate-axillary, pedunculate, trichotomous, umbelliform cyme, the ultimate branches greatly reduced, inconspicuously bracteate, bearing several to numerous, small to medium-sized flowers. Calyx 5-parted, the lobes essentially equal, scarcely imbricate, bearing an opposite squamella within at the base. Corolla subrotate, rarely subsalverform, the tube relatively short, not appendaged within, the limb regularly 5-parted, dextrorsely contorted. Anthers more or less conspicuously exserted, connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 separate or more or less concrescent nectaries; stigma fusiform-capitate. Follicles 2, separate; seeds numerous, dry, comose at the apex.

Type species, *Thenardia floribunda* H. B. K.

Limb of the corolla 20–28 mm. in diameter; corolla-tube not sharply constricted at the insertion of the stamens.
- Corolla subsalverform, the tube 5–6 mm. long, the lobes 7–8 mm. long. — 1. *T. tubulifera*.
- Corolla subrotate, the tube 2–3.5 mm. long, the lobes 10–13 mm. long. — 2. *T. floribunda*.

Limb of the corolla 10–15 mm. in diameter; corolla-tube sharply constricted at the insertion of the stamens.
- Corolla-lobes obtuse; squamellae narrowly oblong-triangular; nectaries about half as long as the ovary. — 3. *T. gonoloboides*.
- Corolla-lobes acute to acuminate; squamellae broadly oblong-dentiform; nectaries equaling or slightly surpassing the ovary. — 4. *T. Galeottiana*.

1. **Thenardia tubulifera** Woodson, Ann. Mo. Bot. Gard. **19**: 381. 1932.

Suffruticose or suffrutescent liana; leaves elliptic-lanceolate, 4–9 cm. long, 1.5–3 cm. broad, subcaudate-acuminate, obtuse at the base, glabrous above, sparsely pilosulous along the midrib and veins to essentially glabrate beneath, the petioles 5–10 mm. long; inflorescence as long as the leaves or somewhat longer, many-flowered, the primary peduncle 25–30 mm. long, the secondary 5–8 mm. long; pedicels 25–27 mm. long, puberulent-papillate to essentially glabrate; calyx-lobes ovate-lanceolate, acuminate, 2–3 mm. long, glabrous; corolla subsalverform, glabrous externally, the tube 5–6 mm. long, about 2 mm. in diameter at the base, slightly and gradually constricted above the middle at the insertion of the stamens, the lobes obliquely obovate-orbicular, minutely apiculate, 7–8 mm. long, spreading; anthers barely exserted; nectaries somewhat shorter than the ovary; follicles unknown.

TYPE LOCALITY: Jalisco.
DISTRIBUTION: Jalisco.

2. **Thenardia floribunda** H. B. K. Nov. Gen. & Sp. **3**: 210. 1819.

Thenardia ? suaveolens Mart. & Gal. Bull. Acad. Brux. **11**[1]: 359. 1844.

Suffruticose or suffrutescent liana; leaves thinly membranaceous, oblong-elliptic, 5.5–13 cm. long, 2–5 cm. broad, acutely subcaudate-acuminate, obtuse at the base, wholly glabrous, or sparsely pilosulous at the base of the midrib beneath, the petioles 8–15 mm. long; inflorescence about equaling or somewhat surpassing the leaves, many-flowered, the primary peduncle 25–80 mm. long, the secondary 4–10 mm. long, minutely and sparsely pilosulous; pedicels 20–22 mm. long, essentially glabrous; calyx-lobes ovate-lanceolate, acuminate, 2.5–3 mm. long, minutely papillate externally; corolla subrotate, glabrous or very indefinitely papillate externally, the tube 2–3.5 mm. long, about 1.5 mm. in diameter at the base and 3.5–4 mm. in diameter at the orifice, barely constricted at the insertion of the stamens, the lobes obliquely

obovate-dolabriform, subcaudate-acuminate, 10–13 mm. long, spreading; anthers widely exserted; nectaries somewhat shorter than the ovary; follicles unknown.

TYPE LOCALITY: "Near City of Mexico."
DISTRIBUTION: Oaxaca and Morelos.
ILLUSTRATION: H. B. K. Nov. Gen. & Sp. *pl. 240.*

3. **Thenardia gonoloboides** Woodson, Ann. Mo. Bot. Gard. **23**: 274. 1936.

Suffruticose or suffrutescent liana; leaves thinly membranaceous, lanceolate, 4–8 cm. long, 1.3–2.5 cm. broad, narrowly acuminate, obtuse at the base, glabrous, or very minutely puberulent at the base of the midrib beneath, the petioles 5–10 mm. long; inflorescence much shorter than the leaves, many-flowered, the primary peduncle 5–12 mm. long, minutely puberulent-papillate, the secondary scarcely manifest; pedicels 7–8 mm. long, minutely puberulent-papillate; calyx-lobes linear-lanceolate, narrowly acuminate, 5–7 mm. long, the squamellae narrowly oblong-triangular; corolla subrotate, glabrous, or very indistinctly papillate externally, the tube 3–3.5 mm. long, about 1.25 mm. in diameter at the base, about 2.5 mm. in diameter at the orifice, abruptly constricted at the insertion of the stamens, the lobes obliquely obovate, obtuse, 6–6.5 mm. long, spreading; anthers conspicuously exserted; nectaries about half as long as the ovary; follicles unknown.

TYPE LOCALITY: Near Oaxaca, Oaxaca; alt. 1950 meters.
DISTRIBUTION: Known only from the type locality.

4. **Thenardia Galeottiana** Baillon, Bull. Soc. Linn. Paris **2**: 819. 1890.

Suffruticose or suffrutescent liana; leaves membranaceous, elliptic-lanceolate, 3–9 cm. long, 0.6–2.5 cm. broad, acuminate, obtuse at the base, glabrous above, minutely puberulent in the lower axils along the midrib to glabrate beneath, the petioles 4–9 mm. long, glabrous; inflorescence much shorter than the leaves, many-flowered, the primary peduncle 4–6 mm. long, minutely puberulent-papillate, the secondary peduncles scarcely manifest; pedicels 6–8 mm. long; calyx-lobes lanceolate, 4–6 mm. long, minutely puberulent-papillate below, the squamellae broadly oblong-dentiform; corolla subrotate, glabrous or indistinctly papillate externally, the tube 2–2.5 mm. long, about 1 mm. in diameter at the base, about 2 mm. in diameter at the orifice, abruptly constricted at the insertion of the stamens, the lobes obliquely obovate, acute to acuminate, 5–5.5 mm. long, spreading; anthers conspicuously exserted; nectaries about as long as the ovary, or somewhat longer; follicles unknown.

TYPE LOCALITY: Talea, Oaxaca; alt. 1000 meters.
DISTRIBUTION: Oaxaca and Guerrero.

42. **PRESTONIA** R. Br. Mem. Wern. Soc. 1: 69. 1811.

Haemadictyon Lindl. Trans. Hort. Soc. London 6: 71. 1825.
Rhaptocarpus Miers, Apoc. S. Am. 151. 1878.
Temnadenia Miers, Apoc. S. Am. 207, in part. 1878.
Mitozus Miers, Apoc. S. Am. 217, in part. 1878.
Belandra Blake, Contr. Gray Herb. 52: 78. 1917.

Fruticose or suffruticose lianas. Leaves not glandular, the veins suffused with crimson or purple in some species; inflorescence alternate-axillary, rarely subterminal, bostrychoidally racemose, simple to dichotomously or trichotomously divided, frequently corymbose to subumbellate, bracteate, bearing few to numerous, medium-sized to large flowers. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, usually somewhat foliaceous, bearing an opposite solitary squamella within. Corolla salverform, or rarely infundibuliform, the tube usually bearing 5 epistaminal appendages within, the orifice bearing a more or less conspicuous, callose, faucal annulus, the limb regularly 5-parted, dextrorsely contorted. Anthers frequently somewhat exserted at the tip, connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 separate or more or less concrescent nectaries; stigma fusiform to subcapitate.

Follicles 2, separate or more or less agglutinated, narrowly terete to subfusiform; seeds numerous, dry, comose.

Type species, *Prestonia tomentosa* R. Br.

Corolla exappendiculate within, glabrous or merely somewhat papillate externally; anthers wholly included; Hispaniola and Puerto Rico. 1. *P. agglutinata.*
Corolla appendiculate within; anther-tips exserted; if with corolla exappendiculate or with anthers wholly included, the corolla then conspicuously ferruginous-pubescent externally.
Calyx-lobes small and inconspicuous, 1.5–2 mm. long, only slightly foliaceous, usually more or less reflexed.
Nectaries shorter than the ovary; follicles relatively stout, continuous; Martinique and Guadeloupe. 2. *P. quinquangularis.*
Nectaries as long as the ovary or somewhat longer; follicles slender, slightly articulate; Central America. 3. *P. acutifolia.*
Calyx-lobes large and conspicuous, 4–25 mm. long, foliaceous or coriaceous to petaloid, not reflexed; Central America.
Corolla glabrous or merely papillate externally.
Nectaries separate, or united only at the base, thick and fleshy. 4. *P. exserta.*
Nectaries concrescent, occasionally somewhat lacerate at the margin.
Nectaries thick and fleshy throughout.
Calyx-lobes 4–5 mm. long. 5. *P. concolor.*
Calyx-lobes 10–12 mm. long. 6. *P. obovata.*
Nectaries thin and more or less diaphanous, at least on the margins.
Epistaminal appendages deeply included.
Anthers glabrous. 7. *P. versicolor.*
Anthers minutely pubescent dorsally. 8. *P. Schippii.*
Epistaminal appendages exserted, or at least reaching the orifice of the corolla.
Calyx-lobes 7–9 mm. long, scarcely or not at all suffused with purple; inflorescence twice or thrice dichotomous. 9. *P. guatemalensis.*
Calyx-lobes 11–17 mm. long, usually deeply suffused with purple; inflorescence once-divided or simple. 10. *P. portobellensis.*
Corolla densely pubescent externally, at least on the lobes.
Corolla-tube appendiculate within. 11. *P. ipomaeifolia.*
Corolla-tube exappendiculate within, or with callose ridges or protuberances in the position of epistaminal appendages.
Corolla salverform.
Nectary annular, broadly 5-lobed or essentially entire, about equaling or barely surpassing the ovary.
Corolla 35–45 mm. long; epistaminal ridges linear. 12. *P. mexicana.*
Corolla 28–30 mm. long; epistaminal ridges nearly quadrate. 13. *P. amanuensis.*
Nectary tubular or subtubular, deeply 5-cleft, conspicuously surpassing the ovary; corolla 40–50 mm. long. 14. *P. isthmica.*
Corolla infundibuliform. 15. *P. speciosa.*

1. **Prestonia agglutinata** (Jacq.) Woodson, Ann. Mo. Bot. Gard. **18**: 552. 1931.

Echites agglutinata Jacq. Enum. Pl. Carib. 13. 1760.
Echites adglutinata Jacq. Sel. Stirp. Am. 31. 1763.
Echites circinalis Sw. Prodr. 52. 1788.
Echites sanguinolenta Tussac, Fl. Ant. **1**: 95. 1808.
? *Echites variegata* Schrad. Goett. Gel. Anz. **1821**: 707. 1821.
Haemadictyon circinalis G. Don, Gen. Hist. **4**: 83. 1838.
Echites leptoloba Stadelm. Flora **24**: Beibl. **1**: 15. 1841.
Haemadictyon nutans var. *sanguinolenta* A. DC. in DC. Prodr. **8**: 426. 1844.
Echites revoluta A. DC. in DC. Prodr. **8**: 457. 1844.
Echites circinalis var. *Thomasiana* A. DC. in DC. Prodr. **8**: 466. 1844.
Temnadenia leptoloba Miers, Apoc. S. Am. 211. 1878.
Anechites adglutinata Miers, Apoc. S. Am. 236. 1878.
Anechites circinalis Miers, Apoc. S. Am. 236. 1878.
Anechites Thomasiana Miers, Apoc. S. Am. 237. 1878.

Suffruticose liana, essentially glabrous throughout; leaves firmly membranaceous, elliptic-oblong to broadly oval, 4–12 cm. long, 2–8 cm. broad, shortly acuminate, obtuse or rounded at the base, opaque, the petioles 12–25 mm. long; inflorescence relatively elongate and lax, simple, bearing 10–20 pale greenish-white flowers; peduncle more or less flexuous, usually somewhat longer than the subtending leaves; pedicels 1–2 mm. long; bracts ovate-lanceolate, scarious to subfoliaceous, about as long as the pedicels; calyx-lobes ovate-lanceolate, acuminate, 2–3 mm.

long, scarious or slightly foliaceous; corolla salverform, glabrous externally, the tube 7–8 mm. long, about 1 mm. in diameter at the base, not appendaged within, the faucal annulus thin and relatively inconspicuous, the lobes obliquely oblong-lanceolate, acuminate, about 5 mm. long, reflexed; anthers inserted about the middle of the corolla-tube, wholly included, glabrous; nectaries separate, fleshy, about half as long as the ovary; follicles unknown.

TYPE LOCALITY: Near Cap Français, now Cap Haïtien, Haïti.
DISTRIBUTION: Hispaniola and Puerto Rico.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 23;* Jacq. Sel. Stirp. Pict. *pl. 30;* Tussac, Fl. Ant. 1: *pl. 11.*

2. **Prestonia quinquangularis** (Jacq.) Spreng. Syst. 1: 637. 1825.

Echites quinquangularis Jacq. Enum. Pl. Carib. 13. 1760.
Haemadictyon venosum Lindl. Trans. Hort. Soc. London 6: 70. 1825.
Haemadictyon nutans A. DC. in DC. Prodr. 8: 426. 1844.
Temnadenia quinquangularis Miers, Apoc. S. Am. 217. 1878.

Suffruticose liana, essentially glabrous throughout; leaves membranaceous, oblong-elliptic to ovate-elliptic, 6–14 cm. long, 2–6 cm. broad, acute to shortly acuminate, obtuse to rounded at the base, conspicuously veined with red or purple when young, the petioles 10–20 mm. long; inflorescence racemose, simple, about as long as the subtending leaves, bearing 6–20 greenish-yellow flowers; pedicels 7–15 mm. long; bracts ovate-lanceolate, 1–1.5 mm. long, subfoliaceous; calyx-lobes ovate-lanceolate, acuminate, 1.5–2 mm. long, subfoliaceous, sharply reflexed; corolla salverform, minutely papillate externally, the tube 12–15 mm. long, about 2.5 mm. in diameter at the base, the epistaminal appendages about 1 mm. long, wholly included, the lobes obliquely obovate, 7–10 mm. long; anthers minutely pubescent dorsally, the tips slightly exserted; nectaries somewhat shorter than the ovary; follicles relatively stout, continuous, agglutinated and united at the tips, 20–35 cm. long, glabrous.

TYPE LOCALITY: [Cartagena, Colombia.]
DISTRIBUTION: Martinique and Guadeloupe; also in Trinidad; reported from Venezuela and the Guianas.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 25;* Jacq. Sel. Stirp. Pict. *pl. 32;* Bot. Mag. *pl. 2473.*

3. **Prestonia acutifolia** (Benth.) K. Schumann, in E. & P. Nat. Pfl. 4^2: 188. 1895.

Haemadictyon acutifolium Benth.; Muell.-Arg. in Mart. Fl. Bras. 6^1: 167. 1860.
Haemadictyon acutifolium var. *latifolium* Muell.-Arg. in Mart. Fl. Bras. 6^1: 167. 1860.
Haemadictyon calignosum Miers, Apoc. S. Am. 260. 1878.
Echites Bangii Rusby, Bull. N. Y. Bot. Gard. 4: 409. 1907.
Echites Hulkiana Pulle, Rec. Trav. Bot. Néerl. 9: 160. 1912.
Echites Laurentiae-disca Rusby, Descr. S. Am. Pl. 85. 1920.
Prestonia acutifolia var. *latissima* Markgraf, Notizbl. Bot. Gart. Berlin 9: 982. 1926.

Fruticose or suffruticose liana; leaves firmly membranaceous, elliptic to oblong-elliptic or ovate-elliptic, 6–16 cm. long, 2–8 cm. broad, acuminate, obtuse or rounded at the base, usually veined with red or purple when young, the petioles 6–20 mm. long; inflorescence racemose, simple, about as long as the subtending leaves or somewhat shorter, bearing 6–40 greenish-yellow flowers; pedicels 5–12 mm. long, glabrous or minutely papillate; bracts ovate-lanceolate, 1–2 mm. long, subfoliaceous; calyx-lobes narrowly ovate-lanceolate, acuminate, 1.5–2 mm. long, subfoliaceous, sharply reflexed, minutely papillate to glabrous; corolla salverform, glabrous or minutely papillate externally, the tube 15–20 mm. long, about 4 mm. in diameter at the base, the epistaminal appendages 0.5–2 mm. long, wholly included, the lobes obliquely obovate, 7–10 mm. long; anthers minutely pubescent dorsally, the tips somewhat exserted; nectaries about as long as the ovary or somewhat longer; follicles relatively slender, obscurely and rather distantly moniliform, agglutinated and united at the apex, 20–40 cm. long, glabrous or essentially so.

TYPE LOCALITY: "Barra do Rio Negro" [Manaos, Amazonas, Brazil.]
DISTRIBUTION: Panama; also widely distributed in tropical South America.

4. **Prestonia exserta** (A. DC.) Standley, Jour. Wash. Acad. **15**: 460. 1925.

Haemadictyon exsertum A. DC. in DC. Prodr. **8**: 426. 1844.
Prestonia tobagensis Urban, Symb. Ant. **5**: 467. 1908.
Prestonia gracilis Rusby, Descr. S. Am. Pl. 91. 1920.

Fruticose or suffruticose liana; leaves membranaceous, elliptic to broadly oval, 6–12 cm. long, 2–6 cm. broad, acute to shortly acuminate, obtuse to rounded at the base, glabrous above, minutely puberulent or glabrate to glabrous beneath, the petioles 6–15 mm. long; inflorescence simple, corymbose, bearing 10–40 yellow flowers; peduncle somewhat shorter than the leaves, minutely puberulent to glabrate; pedicels 8–15 mm. long, minutely puberulent; bracts linear to linear-lanceolate, 1–5 mm. long, or rarely oblong-elliptic, foliaceous, and 1–2 mm. long; calyx-lobes linear to oblong-elliptic, 6–7 mm. long, foliaceous, minutely puberulent; corolla salverform, glabrous to minutely papillate externally, the tube 15–18 mm. long, about 3 mm. in diameter at the base, the epistaminal appendages conspicuously exserted, 3–6 mm. long, the lobes broadly dolabriform, 9–12 mm. long; anthers glabrous, their tips exserted; nectaries separate, or united only at the base, thick and fleshy, about equaling the ovary; follicles relatively long and slender, somewhat agglutinated when young, 23–29 cm. long, glabrous.

TYPE LOCALITY: Near Caracas, Venezuela.
DISTRIBUTION: Panama; also in northern South America.

5. **Prestonia concolor** (Blake) Woodson; Standley & Record, Field Mus. Publ. Bot. **12**: 327. 1936.

Belandra concolor Blake, Contr. Gray Herb. **52**: 78. 1917.

Fruticose or suffruticose liana; leaves subcoriaceous, oblong-elliptic, 9–13 cm. long, 3–5 cm. broad, shortly acuminate, obtuse or rounded at the base, glabrous, somewhat lustrous above, the petioles 6–9 mm. long, glabrous to minutely papillate; inflorescence racemose, simple, bearing 30–40 greenish-yellow flowers, the peduncle about as long as the leaves, glabrous or minutely papillate; pedicels 7–10 mm. long, minutely papillate; bracts linear-lanceolate, 0.5–0.7 mm. long, scarious; calyx-lobes ovate-elliptic, acute to acuminate, 4–5 mm. long, membranaceous to subcoriaceous, deeply suffused with purple, minutely papillate externally; corolla salverform, glabrous or very minutely papillate externally, the tube 15–18 mm. long, about 3 mm. in diameter at the base, the epistaminal appendages wholly included, the lobes obliquely obovate, 8–10 mm. long; anthers glabrous or very minutely puberulent dorsally, slightly exserted; nectaries concrescent, thick and fleshy, entire or slightly undulate, somewhat surpassing the ovary; follicles unknown.

TYPE LOCALITY: Bank of Rio Grande, British Honduras.
DISTRIBUTION: British Honduras.

6. **Prestonia obovata** Standley, Jour. Wash. Acad. **15**: 459. 1925.

Fruticose liana; leaves coriaceous to subcoriaceous, obovate to obovate-oblong, 9–16 cm. long, 4–8 cm. broad, obtuse or rounded, or occasionally abruptly and very shortly acuminate, obtuse and somewhat cuneate at the base, glabrous, somewhat lustrous above, the petioles 7–12 mm. long, glabrous to very sparsely and minutely pilosulous; inflorescence corymbose, dichotomous, bearing 10–30 purplish-yellow flowers, the peduncle much shorter than the subtending leaves, glabrous; pedicels 11–15 mm. long, minutely and sparsely pilosulous to glabrate; bracts ovate-lanceolate, 1.5–2 mm. long; calyx-lobes oblong-elliptic, acuminate, 10–12 mm. long, coriaceous, purplish, minutely papillate to glabrous externally; corolla salverform, minutely papillate externally, the tube 10–13 mm. long, about 3 mm. in diameter at the base, the epistaminal appendages wholly included, the lobes obliquely obovate, 7–10 mm. long; anthers glabrous, slightly exserted; nectaries concrescent, rather thick and fleshy, entire or slightly undulate, somewhat longer than the ovary; follicles unknown.

TYPE LOCALITY: Between Gamboa and Cruces, Canal Zone, Panama.
DISTRIBUTION: Panama.

7. **Prestonia versicolor** Woodson, Ann. Mo. Bot. Gard. **23**: 332. 1936.

Fruticose or suffruticose liana; leaves firmly membranaceous, oval or oblong-elliptic, 10–17 cm. long, 5–9 cm. broad, abruptly and shortly acuminate, obtuse or rounded at the base, opaque, glabrous, the petioles 13–21 mm. long, glabrous; inflorescence subcorymbose, dichotomous, bearing several to numerous purplish-yellow flowers, the peduncle much shorter than the leaves, glabrous; pedicels 14–16 mm. long, glabrous; bracts very minute, scarcely manifest; calyx-lobes oblong-elliptic, acute to acuminate, 8–10 mm. long, membranaceous, green, inconspicuously flushed with purple, glabrous; corolla salverform, glabrous externally, the tube 12–16 mm. long, about 3 mm. in diameter at the base, the epistaminal appendages wholly included, the lobes obliquely obovate, 7–9 mm. long; anthers glabrous, slightly exserted; nectaries concrescent, thin, more or less diaphanous, conspicuously surpassing the ovary; follicles unknown.

TYPE LOCALITY: Cana and vicinity, Darien, Panama; alt. 600–1950 meters.
DISTRIBUTION: Eastern Panama.

8. **Prestonia Schippii** Woodson, Ann. Mo. Bot. Gard. **23**: 337. 1936.

Fruticose or suffruticose liana; leaves firmly membranaceous, oblong-elliptic, 10–17 cm. long, 4–7 cm. broad, abruptly and shortly acuminate, obtuse to rounded at the base, opaque, glabrous, the petioles 12–16 mm. long, glabrous or minutely papillate; inflorescence subcorymbose, simple, bearing 10–12 cream-colored flowers, the peduncle much shorter than the leaves; pedicels 12–15 mm. long, glabrous or very minutely papillate; bracts ovate-lanceolate, 1–2 mm. long, scarious, or the lowermost rarely somewhat larger and subfoliaceous; calyx-lobes narrowly obovate-elliptic, acute, 10–12 mm. long, subcoriaceous, glabrous, slightly purple-tinted; corolla salverform, minutely papillate externally, the tube 13–14 mm. long, about 3 mm. in diameter at the base, the epistaminal appendages wholly included, the lobes obliquely obovate, 9–10 mm. long; anthers minutely hirtellous dorsally, slightly exserted; nectaries concrescent, thin and somewhat diaphanous, conspicuously surpassing the ovary; follicles unknown.

TYPE LOCALITY: Eldorado, British Honduras; alt. 60 meters.
DISTRIBUTION: Known only from the type locality.

9. **Prestonia guatemalensis** Woodson, Ann. Mo. Bot. Gard. **23**: 339. 1936.

Fruticose liana; leaves firmly membranaceous, broadly obovate-elliptic, 18–25 cm. long, 8–10 cm. broad, shortly and acutely acuminate, obtusely cuneate at the base, glabrous, the petioles 10–15 mm. long; inflorescence lateral, twice dichotomous or thrice dichotomous, bearing several yellowish flowers, the peduncle 5.5–6 cm. long, glabrous; pedicels 9–12 mm. long, glabrous to minutely papillate; calyx-lobes rather broadly elliptic, obtusish to broadly acute, 7–9 mm. long, subcoriaceous, pale-green, evidently not suffused with purple, minutely papillate externally; corolla salverform, glabrous externally, the tube 18–20 mm. long, about 2 mm. in diameter at the base, the epistaminal appendages somewhat exserted, the lobes obliquely obovate, 12–13 mm. long; anthers glabrous, their tips exserted; nectaries concrescent, membranaceous, completely concealing the ovary; follicles 30–50 cm. long, relatively stout, glabrous.

TYPE LOCALITY: Sepacuite, Guatemala.
DISTRIBUTION: Guatemala.

10. **Prestonia portobellensis** (Beurl.) Woodson, Ann. Mo. Bot. Gard. **18**: 553. 1931.

Echites portobellensis Beurl. Sv. Vet. Akad. Handl. **1854**: 137. 1856.
Haemadictyon schizadenium Muell.-Arg. Linnaea **30**: 431. 1860.
Prestonia macrocarpa Hemsl. Biol. Centr. Am. Bot. **2**: 311. 1881.
Prestonia schizadenia Hemsl. Biol. Centr. Am. Bot. **2**: 312. 1881.

Fruticose liana; leaves firmly membranaceous to subcoriaceous, oblong-elliptic, 9–29 cm. long, 3–18 cm. broad, obtuse to abruptly and shortly acuminate, obtuse or rounded at the base,

glabrous, the petioles 6–30 mm. long; inflorescence subcorymbose, dichotomously or trichotomously divided, rarely simple, bearing 8–30 purplish-yellow flowers, the peduncle much shorter than the subtending leaves, glabrous; pedicels 6–18 mm. long, glabrous to very minutely papillate; bracts ovate-lanceolate, 0.5–4 mm. long, scarious or slightly foliaceous below; calyx-lobes oblong-elliptic, acuminate, 11–17 mm. long, coriaceous to subcoriaceous, more or less flushed with purple, glabrous to indistinctly papillate externally; corolla salverform, glabrous to very minutely papillate externally, the tube 11–17 mm. long, 3–3.5 mm. in diameter at the base, the epistaminal appendages slightly exserted or at least reaching the orifice, the lobes obliquely obovate, 10–15 mm. long; anthers puberulent-papillate dorsally, the tips exserted; nectaries concrescent, membranaceous, conspicuously surpassing the ovary; follicles relatively slender, 33–35 cm. long, glabrous.

TYPE LOCALITY: Porto Bello [Panama].
DISTRIBUTION: Oaxaca; Honduras and Salvador; Costa Rica and Panama.

11. **Prestonia ipomaeifolia** A. DC. in DC. Prodr. **8**: 429. 1844.

Prestonia Seemannii Miers, Apoc. S. Am. 146. 1878.

Fruticose or suffruticose liana, ferruginous-pubescent throughout; leaves firmly membranaceous, broadly elliptic to oval, 9–14 cm. long, 5–8 cm. broad, very abruptly and shortly acuminate, broadly obtuse to rounded at the base, rather sparsely hispid-hirtellous above, somewhat more densely hispid to hispidulous beneath, the indument dark-orange-brown when dry, lustrous, the petioles 4–6 mm. long, their indument like that of the lower leaf-surface; inflorescence densely subumbellate, simple, ferruginous-pubescent throughout, bearing 10–30 yellowish flowers, the peduncle much shorter than the subtending leaves; pedicels 4–7 mm. long, hirtellous; bracts ovate-lanceolate to linear-lanceolate, 7–9 mm. long, somewhat foliaceous; calyx-lobes ovate-lanceolate, acuminate, 9–11 mm. long, somewhat foliaceous, hispid-hirsute; corolla salverform, ferruginous-villous externally, the tube 17–18 mm. long, about 3 mm. in diameter at the base, the epistaminal appendages barely exserted or reaching the orifice, the lobes obliquely obovate, 12–14 mm. long; anthers glabrous, slightly exserted; nectaries concrescent, barely 5-lobed, fleshy, surpassing the ovary; follicles unknown.

TYPE LOCALITY: Near Cayenne, French Guiana.
DISTRIBUTION: Panama; also in Colombia and French Guiana.

12. **Prestonia mexicana** A. DC. in DC. Prodr. **8**: 429. [Mr] 1844.

Haemadictyon mexicanum A. DC. in DC. Prodr. **8**: 428. 1844.
Prestonia sericea Mart. & Gal. Bull. Acad. Brux. 11[1]: 360. [My?] 1844.
Mitozus mexicanus Miers, Apoc. S. Am. 225. 1878.
Exothostemon sericeum Miers, Apoc. S. Am. 241. 1878.

Fruticose or suffruticose liana, ferruginous-pubescent throughout; leaves firmly membranaceous, broadly ovate to oval or obovate-elliptic, 7–23 cm. long, 4–15 cm. broad, acute to very abruptly and shortly acuminate, rounded to obscurely cordate at the base, hispid-hirtellous to scabridulous above, densely tomentose beneath, the petioles 3–9 mm. long, tomentose; inflorescence closely subumbellate, simple, bearing 8–20 yellowish flowers; peduncle much shorter than the subtending leaves; pedicels 5–10 mm. long, tomentulose; bracts ovate-lanceolate, 6–17 mm. long, foliaceous; calyx-lobes ovate-lanceolate to oblong-lanceolate, acute to acuminate, 12–23 mm. long, foliaceous, appressed-tomentulose; corolla salverform, ferruginous-villosulous externally, the tube 22–30 mm. long, 3–3.5 mm. in diameter at the base, the epistaminal appendages replaced by linear callose ridges, the lobes obliquely obovate, 13–15 mm. long; anthers glabrous, slightly exserted; nectaries concrescent, annular, broadly 5-lobed to essentially entire, about equaling or slightly surpassing the ovary; follicles stout and rigid, narrowly napiform, sharply divaricate, 6–12 cm. long, densely and rigidly ferruginous-hispid.

TYPE LOCALITY: Near Oaxaca, Oaxaca.
DISTRIBUTION: Colima, Vera Cruz, Oaxaca, and Guatemala.
ILLUSTRATION: A. DC. Calq. Dess. *pl. 795* (the indument has apparently been omitted accidentally).

13. **Prestonia amanuensis** Woodson, Ann. Mo. Bot. Gard. **23**: 359. 1936.

Suffruticose liana, ferruginous-pubescent throughout; leaves firmly membranaceous, broadly ovate, 6–9 cm. long, 4–7 cm. broad, abruptly and shortly acuminate, broadly and obscurely cordate at the base, densely hispidulous above, densely tomentulose beneath, the petioles 2–3 mm. long, tomentulose; inflorescence densely subumbellate, simple, bearing 6–12 cream-colored flowers, the peduncle much shorter than the leaves, tomentose; pedicels 3–5 mm. long, tomentulose; bracts ovate-lanceolate, 3–7 mm. long; calyx-lobes ovate-lanceolate, acuminate, 11–17 mm. long, foliaceous, minutely appressed-hirtellous; corolla salverform, ferruginous-villous externally, the tube 20–22 mm. long, about 3 mm. in diameter at the base, the epistaminal appendages replaced by subquadrate protuberances, the lobes obliquely obovate, 8–9 mm. long; anthers glabrous, slightly exserted; nectaries concrescent, annular, essentially entire, about as long as the ovary; follicles unknown.

TYPE LOCALITY: Stann Creek Railway, British Honduras.
DISTRIBUTION: British Honduras.

14. **Prestonia isthmica** Woodson, Ann. Mo. Bot. Gard. **18**: 555. 1931.

Fruticose or suffruticose liana, ferruginous-pubescent throughout; leaves firmly membranaceous, broadly obovate to oblong-elliptic, 9–22 cm. long, 5–13 cm. broad, abruptly and shortly acuminate, obtuse or rounded at the base and obscurely cordate, minutely and rather sparsely hirtellous-strigillose above, minutely tomentulose beneath, the petioles 3–12 mm. long, finely tomentulose; inflorescence densely subumbellate, simple, bearing 4–12 rather large yellowish flowers, the peduncle much shorter than the subtending leaves, finely tomentulose; pedicels 5–10 mm. long, minutely tomentulose-papillate; bracts ovate-lanceolate, 7–12 mm. long, foliaceous; calyx-lobes ovate to ovate-lanceolate, acuminate, 20–25 mm. long, foliaceous, minutely and rather irregularly hirtellous-papillose externally; corolla salverform, villosulous externally, the tube 25–35 mm. long, 3–4 mm. in diameter at the base, the epistaminal appendages replaced by callous linear ridges, the lobes obliquely obovate, 13–17 mm. long; anthers glabrous, slightly exserted; nectaries concrescent, tubular or subtubular, deeply 5-lobed, conspicuously surpassing the ovary; follicles stout and rigid, narrowly napiform, sharply divaricate, 7–12 cm. long, densely and rigidly ferruginous-hispid.

TYPE LOCALITY: Between Aserri and Tarbaca, San José, Costa Rica.
DISTRIBUTION: Costa Rica.

15. **Prestonia speciosa** Donn. Smith, Bot. Gaz. **27**: 435. 1899.

Fruticose liana, ferruginous-pubescent throughout; leaves firmly membranaceous, ovate to ovate-elliptic, 10–17 cm. long, 7–11 cm. broad, abruptly and shortly acuminate, broadly obtuse or rounded at the base, sparsely and minutely hispidulous-strigillose above, tomentulose along the midrib and veins beneath, the petioles 5–12 mm. long, tomentulose; inflorescence subumbellate, simple, bearing 4–8 bright-yellow flowers, the peduncle scarcely longer than the subtending petioles, ferruginous-tomentulose; pedicels 10–15 mm. long, tomentulose; bracts narrowly lanceolate, 2–5 mm. long, slightly foliaceous; calyx-lobes ovate to ovate-oblong, acute, 12–15 mm. long, foliaceous, minutely and rather irregularly hirtellous; corolla infundibuliform, appressed-villosulous externally, the tube proper 15–17 mm. long, about 3.5 mm. in diameter at the base, the throat rather narrowly conic-campanulate, 15–16 mm. long, 8–9 mm. in diameter at the orifice, the epistaminal appendages replaced by inconspicuous obtriangular-foveolate protuberances, the lobes obliquely obovate, 20–25 mm. long, widely spreading; anthers glabrous, included; nectaries concrescent, rather obscurely and irregularly lobed, somewhat longer than the ovary; follicles unknown.

TYPE LOCALITY: Buena Vista, Santa Rosa, Guatemala; alt. 1700 meters.
DISTRIBUTION: Guatemala and El Salvador.

43. **RHABDADENIA** Muell.-Arg. in Mart. Fl. Bras. 6[1]: 173. 1860.

Fruticose, suffruticose, or suffrutescent lianas, rarely erect or suberect. Leaves opposite, not glandular. Inflorescence a greatly reduced dichasial cyme, alternate-axillary to subterminal, frequently 1-flowered. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, somewhat foliaceous, scarcely imbricate, without squamellae within. Corolla infundibuliform, the tube exappendiculate within, straight, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing numerous ovules, surrounded by 5 separate or somewhat concrescent nectaries; stigma fusiform. Follicles 2, separate, rather narrowly terete; seeds numerous, rostrate, comose at the apex.

Type species, *Rhabdadenia Pohlii* Muell.-Arg.

1. **Rhabdadenia biflora** (Jacq.) Muell.-Arg. in Mart. Fl. Bras. 6[1]: 175. 1860.

Echites biflora Jacq. Enum. Pl. Carib. 13. 1760.
Echites paludosa Vahl, Eclog. **2**: 19. 1798.
Exothostemon paludosum G. Don, Gen. Hist. **4**: 83. 1838.
Echites Ehrenbergii Schlecht. Linnaea **26**: 666. 1855.
Echites Billbergii Beurl. Sv. Vet. Akad. Handl. **1854**: 137. 1856.
Rhabdadenia Ehrenbergii Muell.-Arg. Linnaea **30**: 454. 1860.
Rhabdadenia paludosa Miers, Apoc. S. Am. 119. 1878.
Rhabdadenia nervosa Miers, Apoc. S. Am. 122. 1878.
Rhabdadenia cordata Miers, Apoc. S. Am. 122. 1878.
Rhabdadenia macrantha Donn. Smith, Bot. Gaz. **40**: 7. 1905.

Fruticose or suffruticose liana, glabrous throughout; leaves coriaceous to firmly membranaceous, broadly obovate-oblong to lanceolate, 5–12 cm. long, 1.5–5 cm. broad, usually rather abruptly mucronate, obtuse at the base, yellowish-green, the upper surface somewhat lustrous, the petioles 1–2 cm. long; inflorescence lateral or rarely subterminal, bearing 1–5 white flowers occasionally somewhat suffused with pale-rose, the peduncle about as long as the leaves or somewhat longer; pedicels 10–13 mm. long; bracts minute, scarious; calyx-lobes broadly ovate-oblong, mucronulate, 1–9 mm. long, subfoliaceous, somewhat spreading; corolla infundibuliform, the tube proper 15–20 mm. long, about 2 mm. in diameter at the base, the throat conic, 20–30 mm. long, 10–15 mm. in diameter at the orifice, the lobes broadly and obliquely obovate, 20–25 mm. long, spreading; anthers densely pilosulous dorsally, included; nectaries about half as long as the ovary; follicles unknown.

TYPE LOCALITY: [Léogane, Haïti.]
DISTRIBUTION: Southern peninsular Florida and Greater Antilles; Campeche, Yucatan, and British Honduras; Panama; also in northern South America.
ILLUSTRATIONS: Jacq. Sel. Stirp. Am. *pl. 21;* Miers, Apoc. S. Am. *pl. 15, A*.

44. **CYCLADENIA** Benth. Pl. Hartw. 322. 1849.

Low, subsucculent, perennial herbs, the stems erect or more or less diffuse. Leaves opposite, not glandular. Inflorescence rather irregularly dichasial, alternate-axillary or pseudoterminal, bearing few to several, handsome, rose-colored or purplish flowers of medium size. Calyx 5-parted nearly to the receptacle, the lobes essentially equal, scarcely imbricate, somewhat foliaceous, without squamellae within. Corolla infundibuliform, the tube exappendiculate within, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 more or less concrescent nectaries; stigma subcapitate. Follicles 2, separate, rather stout, terete; seeds numerous, comose at the apex.

Type species, *Cycladenia humilis* Benth.

1. **Cycladenia humilis** Benth. Pl. Hartw. 322. 1849.

Low, subsucculent, perennial herb, from a stout tap-root, glabrous and more or less glaucous throughout; leaves rather thick, ovate to suborbicular, 3–7 cm. long, 2–6 cm. broad, or the lower much smaller, obtuse to rounded at the apex, obtuse to obscurely cordate at the base and rather gradually produced into the petioles, the petioles 5–30 mm. long; cymes few-flowered to several-flowered, about as long as the subtending leaves or somewhat longer; pedicels 7–12 mm. long; bracts narrowly lanceolate, 2–5 mm. long; calyx-lobes ovate-lanceolate to linear, acuminate, 5–8 mm. long; corolla reddish-violet, rarely cream-colored, infundibuliform, the tube proper 2–5 mm. long, about 2 mm. in diameter at the base, the throat conic, 5–8 mm. long, 4–6 mm. in diameter at the orifice, the lobes obovate-oblong, 5–8 mm. long, spreading; follicles relatively stout, 3.5–7 cm. long.

TYPE LOCALITY: "Sacramento Mountains" [Butte County?], California.
DISTRIBUTION: Northern California, at alpine or subalpine altitudes.

Cycladenia humilis var. **venusta** (Eastw.) Woodson; Munz, Man. S. Calif. Bot. 379. 1935. *Cycladenia venusta* Eastw. Bull. Torrey Club **29**: 77. 1902. Calyx and corolla-tube conspicuously pilose; otherwise glabrous. TYPE LOCALITY: Summit of Santa Lucia Peak, Monterey County, California. DISTRIBUTION: Southern California and southern Utah, at subalpine altitudes.

Cycladenia humilis var. **tomentosa** A. Gray, Syn. Fl. N. Am. ed. 2. 2^1: 400. 1886. *Cycladenia tomentosa* A. Gray, Bot. Calif. **1**: 474. 1876. Plants densely tomentose throughout. TYPE LOCALITY: Between Big Meadows and Indian Valley, Plumas County, California. DISTRIBUTION: Northern California, at subalpine altitudes, frequently with the species.

45. **LAUBERTIA** A. DC. in DC. Prodr. **8**: 486. 1844.

Streptotrachelus Greenman, Proc. Am. Acad. **32**: 298. 1897.

Fruticose or suffruticose lianas. Leaves opposite, or rarely verticillate above, not glandular. Inflorescence alternate-axillary, occasionally subterminal or terminal, dichotomously or trichotomously scorpioid, bearing few to numerous flowers of moderate size. Calyx 5-parted nearly to the receptacle, the lobes equal or subequal, somewhat foliaceous, scarcely imbricate, without squamellae within. Corolla salverform, the tube exappendiculate within, spirally contorted in our species, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective, usually slightly exserted at the tip. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 separate or somewhat concrescent nectaries; stigma fusiform-capitate. Follicles 2, separate, terete; seeds numerous, truncate, comose at the apex.

Type species, *Laubertia Boissierii* A. DC.

Calyx-lobes ovate-lanceolate, 3–4.5 mm. long; corolla-tube 20–23 mm. long; anther-tips exserted. 1. *L. contorta*.
Calyx-lobes narrowly oblong-elliptic, 9–11 mm. long; corolla-tube 13–14 mm. long; anther-tips barely included. 2. *L. peninsularis*.

1. **Laubertia contorta** (Mart. & Gal.) Woodson.

Haemadictyon contortum Mart. & Gal. Bull. Acad. Brux. 11^1: 360. 1844.
Exothostemon contortum Miers, Apoc. S. Am. 241. 1878.
Prestonia contorta Hemsl. Biol. Centr. Am. Bot. **2**: 311. 1881.
Streptotrachelus Pringlei Greenman, Proc. Am. Acad. **32**: 298. 1897.
Prestonia Langlassei Standley, Contr. U. S. Nat. Herb. **23**: 1159. 1924.
Laubertia Pringlei Woodson, Ann. Mo. Bot. Gard. **18**: 555. 1931.

Fruticose or suffruticose liana; leaves membranaceous, broadly ovate-elliptic to oblong-elliptic, 5–10 cm. long, 2.5–5 cm. broad, shortly acuminate, rounded to very obscurely cordate at the base, very minutely and rather sparsely puberulent to essentially glabrate on both sides, the petioles 15–30 mm. long; inflorescence simple or essentially so, about equaling or somewhat shorter than the subtending leaves, bearing several reddish or greenish-purple flowers; pedicels 10–15 mm. long, minutely appressed-puberulent; calyx-lobes ovate-lanceolate, acuminate, 3–4.5 mm. long, minutely hirtellous externally, somewhat foliaceous; corolla salverform, minutely ferruginous-puberulent externally, the tube 20–23 mm. long, spirally contorted near the middle below the insertion of the stamens, about 3 mm. in diameter at the base, the lobes rather broadly dolabriform, 7–8 mm. long, reflexed; stamens inserted somewhat above the

middle of the corolla-tube, the anthers minutely hirtellous dorsally, slightly exserted; nectaries somewhat shorter than the ovary; follicles slender, rather distantly moniliform, finely ferruginous-hirtellous.

TYPE LOCALITY: Zacatepec, Oaxaca.
DISTRIBUTION: Sinaloa, Morelos, and Oaxaca.

2. **Laubertia peninsularis** Woodson, Ann. Mo. Bot. Gard. **23**: 374. 1936.

Fruticose liana; leaves firmly membranaceous, ovate-elliptic, 6–13 cm. long, 4–7 cm. broad, acuminate, rounded to very obscurely cordate at the base, minutely puberulent to glabrate above, minutely ferruginous-puberulent beneath, the petioles 20–23 mm. long; inflorescence dichotomous or trichotomous, somewhat shorter than the leaves, bearing 10–20 medium-sized cream-colored flowers; pedicels 8–10 mm. long, ferruginous-hirtellous; calyx-lobes oblong-elliptic, acute to acuminate, 9–11 mm. long, conspicuously subfoliaceous, minutely ferruginous-hirtellous externally; corolla salverform, minutely ferruginous-hirtellous externally, the tube 13–14 mm. long, spirally contorted somewhat above the middle immediately below the insertion of the stamens, about 2.5 mm. in diameter at the base, the lobes obliquely obovate, 9–11 mm. long, reflexed; stamens inserted about the middle of the corolla-tube, the anthers minutely puberulent-papillate dorsally, barely included; nectaries somewhat shorter than the ovary; follicles unknown.

TYPE LOCALITY: British Honduras.
DISTRIBUTION: Known only from the type locality.

46. **APOCYNUM** L. Sp. Pl. 213. 1753.

Apocynastrum Heist.; Fabr. Enum. Pl. Horti Helmst. 256. 1759.
Apocinum Juss. Gen. Pl. 146. 1789.
Cynopaema Lunell, Am. Midl. Nat. **4**: 508. 1916.

Herbaceous perennials, reproducing freely by horizontal gemmiferous roots. Leaves opposite or rarely verticillate, not glandular. Inflorescence an aggregate dichasium bearing few to many, small or medium-sized flowers, terminal and axillary. Calyx 5-parted nearly to the receptacle, without internal squamellae, the lobes equal, scarcely imbricate. Corolla campanulate to urceolate or cylindric, the tube short, with 5 small sagittate appendages at the base opposite the lobes, the limb regularly 5-parted, dextrorsely contorted. Anthers connivent and agglutinated to the stigma, with an enlarged, narrowly 2-lobed connective, the pollen-grains maintained within persistent tetrads. Ovary apocarpous, containing numerous ovules, surrounded at the base by 5 distinct, ovoid nectaries; stigma usually virtually sessile, variable in shape but essentially ovoid-fusiform. Follicles usually 2, separate or somewhat agglutinated at the tips, slender, terete; seeds numerous, truncate, comose.

Type species, *Apocynum cannabinum* L.

Corolla usually at least twice as long as the calyx-lobes; leaves usually drooping or spreading (except in *A. Jonesii* and *A. Suksdorfii*).
  Corolla usually about three times as long as the calyx-lobes; leaves drooping.
    Corolla campanulate; follicles pendulous at maturity. — 1. *A. androsaemifolium.*
    Corolla more or less cylindric or urceolate; follicles nearly erect at maturity. — 2. *A. pumilum.*
  Corolla usually about twice as long as the calyx-lobes; leaves usually spreading, or ascending in *A. Jonesii* and *A. Suksdorfii*.
    Leaves usually spreading; corolla 3–6 mm. long, the lobes usually spreading. — 3. *A. medium.*
    Leaves usually ascending; corolla 2–4 mm. long, the lobes erect or ascending.
      Corolla urceolate, about three times as long as the calyx-lobes. — 4. *A. Jonesii.*
      Corolla cylindric, about twice as long as the calyx-lobes. — 5. *A. Suksdorfii.*
Corolla scarcely longer than the calyx-lobes; leaves usually ascending.
  Leaves manifestly petiolate, narrowed at the base, or the lowermost obtuse at the base and sessile; bracts of the inflorescence rather inconspicuous and scarious. — 6. *A. cannabinum.*
  Leaves nearly or quite sessile, cordate or obtuse at the base, especially on the main stem, frequently less so on the branches; bracts of the inflorescence usually rather conspicuous and subfoliaceous. — 7. *A. sibiricum.*

1. **Apocynum androsaemifolium** L. Sp. Pl. ed. 2. 311. 1762.

Apocynum fol. androsaemi L. Sp. Pl. 213. 1753.
Apocynum muscipulum Moench, Meth. 464. 1794.
Apocynum androsaemifolium var. *incanum* A. DC. in DC. Prodr. 8: 439. 1844.
Apocynum androsaemifolium f. *pauciflora* Peck, Ann. Rep. N. Y. State Mus. **47**: 158. 1894.
Apocynum silvaticum Greene, Leaflets **2**: 179. 1912.
Apocynum androsaemifolium var. *puberulum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 671. 1913.
Cynopaema androsaemifolium Lunell, Am. Midl. Nat. **4**: 509. 1916.

Stems erect or ascending, 2–5 dm. tall, glabrous, freely and rather dichotomously branched, the branches alternate or subalternate; leaves petiolate, drooping, ovate to oblong-lanceolate, 2–10 cm. long, 1–6 cm. broad, glabrous or rarely sparsely pilosulous above, sparsely pilosulous to densely tomentulose beneath, or rarely glabrous or glabrate; calyx-lobes ovate to ovate-lanceolate, 2–5 mm. long, glabrous, or rarely minutely pilosulous; corolla campanulate, 5–12 mm. long, the lobes white, usually with pinkish veins, widely spreading or reflexed, glabrous externally; follicles 6–15 cm. long, pendulous at maturity.

TYPE LOCALITY: Canada.
DISTRIBUTION: Newfoundland to British Columbia, and southward to Georgia and Arizona.
ILLUSTRATIONS: Bot. Mag. *pl. 280;* Lam. Tab. Encyc. *pl. 176;* Bigel. Am. Med. Bot. *pl. 36;* Britt. & Brown, Ill. Fl. *f. 2895;* ed. 2. *f. 3376;* House, Wild Fl. N. Y. *pl. 170;* Ann. Mo. Bot. Gard. **17**: *pl. 9.*

Apocynum androsaemifolium var. **glabrum** Macoun, Cat. Can. Pl. **2**: 317. 1884. *Apocynum ambigens* Greene, Pl. Baker. **3**: 17. 1901. *Apocynum scopulorum* Greene; Rydb. Fl. Colo. 269. 1906. *Apocynum androsaemifolium* var. *microphyllum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 677. 1913. *Apocynum ambigens* var. *bicolor* Bég. & Bel. Mem. Accad. Lincei V. **9**: 679. 1913. *Apocynum macranthum* Rydb. Fl. Rocky Mts. 669. 1917. Differing from the typical element of the species principally in the wholly glabrous foliage. TYPE LOCALITY: Kootenay Valley, British Columbia. DISTRIBUTION: Southwestern Canada and northwestern United States.

2. **Apocynum pumilum** (A. Gray) Greene, Man. Bay Reg. 240. 1894.

Apocynum androsaemifolium var. *pumilum* A. Gray, Syn. Fl. N. Am. **2**[1]: 83. 1878.
Apocynum calophyllum Greene, Leaflets **1**: 57. 1904.
Apocynum cardiophyllum Greene, Leaflets **1**: 79. 1904.
Apocynum bicolor McGregor, Bull. Torrey Club **37**: 261. 1910.
Apocynum ovalifolium Greene, Leaflets **2**: 182. 1912.
Apocynum paniculatum Greene, Leaflets **2**: 183. 1912.
Apocynum stenolobum Greene, Leaflets **2**: 183. 1912.
Apocynum eximium Greene, Leaflets **2**: 184. 1912.
Apocynum plumbeum Greene, Leaflets **2**: 185. 1912.
Apocynum xylosteaceum Greene, Leaflets **2**: 185. 1912.
Apocynum rotundifolium Greene, Leaflets **2**: 186. 1912.
Apocynum Austinae Greene, Leaflets **2**: 188. 1912.
Apocynum cercidium Greene, Leaflets **2**: 188. 1912.
Apocynum luridum Greene, Leaflets **2**: 189. 1912.
Apocynum pumilum var. *cercidium* Bég. & Bel. Mem. Accad. Lincei V. **9**: 684. 1913.
Apocynum pumilum var. *calophyllum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 684. 1913.
Apocynum pumilum var. *ovalifolium* Bég. & Bel. Mem. Accad. Lincei V. **9**: 684. 1913.
Apocynum pumilum var. *xylosteaceum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 685. 1913.
Apocynum pumilum var. *plumbeum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 685. 1913.
Apocynum pumilum var. *stenolobum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 686. 1913.
Apocynum androsaemifolium var. *nevadense* Jepson, Man. Fl. Pl. Calif. 769. 1925.

Stems erect, ascending, or diffuse, 1–4 dm. tall, freely and rather dichotomously branched, the branches ascending or spreading, alternate to subalternate, glabrous; leaves opposite, petiolate to subsessile, drooping, ovate to oblong-lanceolate, 1.5–7 cm. long, 0.5–4.5 cm. broad, frequently somewhat cordate at the base, glabrous; calyx-lobes ovate to ovate-lanceolate, 2–3 mm. long, glabrous; corolla more or less cylindric or urceolate, 6–9 mm. long, the lobes white, usually with pinkish veins, usually widely spreading or reflexed, glabrous externally; follicles 5–12 cm. long, nearly erect at maturity.

TYPE LOCALITY: California.
DISTRIBUTION: Montana and Wyoming, and westward and southwestward to Washington, Oregon, and California.

Apocynum pumilum var. **rhomboideum** (Greene) Bég. & Bel. Mem. Accad. Lincei V. **9**: 688. 1913. *Apocynum rhomboideum* Greene, Pittonia **5**: 66. 1902. *Apocynum tomentellum* Greene, Leaflets **1**: 58. 1904. Not *A. tomentellum* Nieuwl. 1913. *Apocynum androsaemifolium* subsp. *detonsum* Piper, Contr. U. S. Nat. Herb. **11**: 453. 1906. *Apocynum cinereum* A. Heller, Muhlen-

bergia 8: 21. 1912. *Apocynum polycardium* Greene, Leaflets 2: 184. 1912. *Apocynum pulchellum* Greene, Leaflets 2: 186. 1912. *Apocynum arcuatum* Greene, Leaflets 2: 187. 1912. *Apocynum diversifolium* Greene, Leaflets 2: 189. 1912. *Apocynum pumilum* var. *intermedium* Bég. & Bel. Mem. Accad. Lincei V. 9: 686. 1913. *Apocynum pumilum* var. *tomentellum* Bég. & Bel. Mem. Accad. Lincei V. 9: 686. 1913. *Apocynum pumilum* var. *pulchellum* Bég. & Bel. Mem. Accad. Lincei V. 9: 688. 1913. Entire plant, or at least the lower surface of the leaves more or less pubescent. TYPE LOCALITY: Napa Valley, California. DISTRIBUTION: Idaho, Washington, Oregon, Nevada, and California. ILLUSTRATION: Ann. Mo. Bot. Gard. 17: *pl. 10.*

3. **Apocynum medium** Greene, Pittonia 3: 229. 1897.

Apocynum speciosum G. Mill. Proc. Biol. Soc. Wash. **13**: 83. 1899.
Apocynum urceolifer G. Mill. Proc. Biol. Soc. Wash. **13**: 85. 1899.
Apocynum Milleri Britton, Man. 739. 1901.
Apocynum divergens Greene, Leaflets **1**: 56. 1904.
Apocynum Andrewsii Greene, Leaflets **1**: 57. 1904.
Apocynum sarniense Greene, Leaflets **2**: 167. 1912.
Apocynum insigne Greene, Leaflets **2**: 178. 1912.
Apocynum ellipticum Greene, Leaflets **2**: 179. 1912.
Apocynum griseum Greene, Leaflets **2**: 181. 1912.
Apocynum androsaemifolium var. *griseum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 677. 1913.
Apocynum pumilum var. *Milleri* Bég. & Bel. Mem. Accad. Lincei V. **9**: 686. 1913.
Apocynum macrophyllum Bég. & Bel. Mem. Accad. Lincei V. **9**: 713. 1913.
Apocynum pseudomedium Bég. & Bel. Mem. Accad. Lincei V. **9**: 714. 1913.
Apocynum Milleri var. *pauciflorum* Farwell, Rep. Mich. Acad. **17**: 170. 1916.
Apocynum medium var. *sarniense* Woodson, Ann. Mo. Bot. Gard. **17**: 111. 1930.

Stems erect or ascending, 2–5 dm. tall, freely and somewhat dichotomously branched, especially below, the branches ascending, alternate to opposite, glabrous to puberulent; leaves opposite, petiolate to subsessile, usually spreading, ovate to oblong-lanceolate, 6–10 cm. long, 1.5–2 cm. broad, occasionally somewhat cordate at the base, glabrous to somewhat puberulent above, more or less pilosulous to tomentulose beneath; calyx-lobes ovate to lanceolate, 1.5–4 mm. long, glabrous to sparsely pilosulous; corolla campanulate to broadly urceolate, 3–6 mm. long, the lobes spreading, white or with pinkish veins; follicles 7–15 cm. long, pendulous at maturity.

TYPE LOCALITY: Middle eastern United States [Brookland, D. C.].
DISTRIBUTION: Newfoundland to Ontario, southward through the eastern United States generally, and westward to Minnesota and New Mexico.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. ed. 2. *f. 3377, 3378;* Ann. Mo. Bot. Gard. **17**: *pl. 11.*

Apocynum medium var. **leuconeuron** (Greene) Woodson, Ann. Mo. Bot. Gard. **17**: 112. 1930. *Apocynum leuconeuron* Greene, Leaflets **2**: 178. 1912. Wholly glabrous; otherwise essentially like the typical element of the species. TYPE LOCALITY: Cockrell, Missouri. DISTRIBUTION: Michigan, Indiana, Wisconsin, and Missouri.

Apocynum medium var. **floribundum** (Greene) Woodson, Ann. Mo. Bot. Gard. **17**: 113. 1930. *Apocynum floribundum* Greene, Erythea **1**: 151. 1893. *Apocynum viarum* A. Heller, Muhlenbergia **2**: 110. 1906. *Apocynum cannabinum* var. *lividum* A. Nelson; Coult. & Nels. Man. 386. 1909. *Apocynum glaucum* Nieuwl. Am. Midl. Nat. **2**: 181. 1912. *Apocynum vacillans* Greene, Leaflets **2**: 180. 1912. *Apocynum rubicundum* Greene, Leaflets **2**: 182. 1912. *Apocynum viride* Wooton & Standley, Contr. U. S. Nat. Herb. **16**: 159. 1913. *Apocynum pumilum* var. *rubicundum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 685. 1913. *Apocynum lividum* var. *vacillans* Bég. & Bel. Mem. Accad. Lincei V. **9**: 717. 1913. *Apocynum lividum* var. *floribundum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 718. 1913. *Apocynum lividum* var. *viarum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 719. 1913. Corolla cylindric to urceolate; plants wholly glabrous; in all other essential details similar to the typical element of the species. TYPE LOCALITY: Kern County, California. DISTRIBUTION: Montana to Colorado and Texas, westward to Washington, Oregon, and California, and southward to Chihuahua and Sonora. ILLUSTRATION: Ann. Mo. Bot. Gard. **17**: *pl. 12.*

Apocynum medium var. **lividum** (Greene) Woodson, Ann. Mo. Bot. Gard. **17**: 115. 1930. *Apocynum lividum* Greene, Pl. Baker. **3**: 17. 1901. *Apocynum ciliolatum* Piper, Contr. U. S. Nat. Herb. **11**: 453. 1906. *Apocynum abditum* Greene, Leaflets **2**: 105. 1910. *Apocynum Elmeri* Greene, Leaflets **2**: 181. 1912. *Apocynum lividum* var. *Elmeri* Bég. & Bel. Mem. Accad. Lincei V. **9**: 717. 1913. *Apocynum lividum* var. *abditum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 718. 1913. *Apocynum denticulatum* Suksd. Werdenda **1**: 31. 1927. Corolla cylindric; plants glabrous, except the more or less pilosulous lower leaf-surface; in all other essential details similar to the typical element of the species. TYPE LOCALITY: Black Cañon [Gunnison County], Colorado. DISTRIBUTION: Wyoming to New Mexico, and westward to Washington, Oregon, and California.

Apocynum medium var. **vestitum** (Greene) Woodson, Ann. Mo. Bot. Gard. **17**: 116. 1930. *Apocynum vestitum* Greene, Man. Bay Reg. 240. 1894. *Apocynum incanum* Greene, Leaflets **2**: 164. 1911. Corolla cylindric; plants more or less densely puberulent throughout; in all other essential details similar to the typical element of the species. TYPE LOCALITY: Hills west of Napa Valley [Napa County], California. DISTRIBUTION: Oregon and California. ILLUSTRATION: Ann. Mo. Bot. Gard. **17**: *pl. 13.*

4. **Apocynum Jonesii** Woodson, Ann. Mo. Bot. Gard. 17: 117. 1930.

Stems erect or somewhat ascending, 5–6 dm. tall, the branches opposite, glabrous throughout; leaves petiolate, or the lower subsessile, ascending or only slightly spreading, lanceolate-oblong, 3–5 cm. long, 1–2 cm. broad, wholly glabrous; calyx-lobes ovate to ovate-lanceolate, 0.8–1 mm. long, glabrous; corolla urceolate, 2.5–3 mm. long, the lobes erect or ascending, glabrous externally; follicles unknown.

TYPE LOCALITY: Flagstaff, Arizona.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Ann. Mo. Bot. Gard. **17**: *pl. 14*.

5. **Apocynum Suksdorfii** Greene, Pittonia **5**: 65. 1902.

Apocynum laurinum Greene, Pittonia **5**: 65. 1902.
Apocynum oliganthum Greene, Leaflets **1**: 58. 1904.
Apocynum myrianthum Greene, Leaflets **1**: 59. 1904.
Apocynum cannabinum var. *oliganthum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 694. 1913.
Apocynum cannabinum var. *Suksdorfii* Bég. & Bel. Mem. Accad. Lincei V. **9**: 695. 1913.
Apocynum hypericifolium var. *myrianthum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 708. 1913.
Apocynum hypericifolium var. *pseudosuksdorfii* Bég. & Bel. Mem. Accad. Lincei V. **9**: 708. 1913.

Stems erect or somewhat ascending, 4–7 dm. tall, glabrous throughout, the branches opposite to subopposite; leaves petiolate, or the lower subsessile, ascending or only slightly spreading, oblong-ovate, 4–8 cm. long, 1.5–2.5 cm. broad, glabrous throughout; calyx-lobes oblong to lanceolate, 1–1.5 mm. long, glabrous; corolla cylindric, white, 2–4 mm. long, glabrous externally, the lobes erect or only slightly spreading; follicles 9–10 cm. long, pendulous, glabrous.

TYPE LOCALITY: [Klickitat County, Washington.]
DISTRIBUTION: Colorado to Washington, and southward to Arizona and California.
ILLUSTRATION: Ann. Mo. Bot. Gard. **17**: *pl. 15*.

Apocynum Suksdorfii var. **angustifolium** (Wooton) Woodson, Ann. Mo. Bot. Gard. **17**: 119. 1930. *Apocynum angustifolium* Wooton; Wooton & Standley, Contr. U. S. Nat. Herb. **16**: 159. 1913. *Apocynum hypericifolium* var. *angustifolium* Bég. & Bel. Mem. Accad. Lincei V. **9**: 710. 1913. Leaves lanceolate to linear-lanceolate; in all other essential details similar to the typical element of the species. TYPE LOCALITY: In the Gila River bottom, near Cliff, Grant County, New Mexico. DISTRIBUTION: Utah and New Mexico.

6. **Apocynum cannabinum** L. Sp. Pl. 213. 1753.

Apocynum platyphyllum Greene, Leaflets **2**: 166. 1912.
Apocynum cannabinum var. *puberulum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 691. 1913.
Apocynum cannabinum var. *incanum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 691. 1913.
Apocynum Greeneanum Bég. & Bel. Mem. Accad. Lincei V. **9**: 701. 1913.
Cynopaema cannabinum Lunell, Am. Midl. Nat. **4**: 509. 1916.
Apocynum cannabinum var. *Greeneanum* Woodson, Ann. Mo. Bot. Gard. **17**: 132. 1930.

Stems erect or ascending, 3–9 dm. tall, glabrous, the branches opposite to subopposite; leaves opposite, rarely verticillate, petiolate, or the lowermost subsessile, ascending or only slightly spreading, ovate to lanceolate, 2–14 cm. long, 1–7 cm. broad, glabrous above, more or less densely pilosulous to tomentulose beneath; calyx-lobes lanceolate to ovate-lanceolate, 3–4 mm. long, glabrous; corolla cylindric to urceolate, 3–6 mm. long, white to greenish, the lobes erect or only slightly spreading; follicles 12–20 cm. long, glabrous, pendulous at maturity.

TYPE LOCALITY: Virginia.
DISTRIBUTION: Throughout the United States.
ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 139*; Britt. & Brown, Ill. Fl. *f. 2896*; ed. 2. *f. 3379*; Ann. Mo. Bot. Gard. **17**: *pl. 16*.

Apocynum cannabinum var. **pubescens** (R. Br.) A. DC. in DC. Prodr. **8**: 440. 1844. *Apocynum pubescens* R. Br. Mem. Wern. Soc. **1**: 68. 1811. *Apocynum palustre* Greene, Leaflets **1**: 58. 1904. *Apocynum Bebbianum* Greene, Leaflets **2**: 168. 1912. *Apocynum dictyotum* Greene, Leaflets **2**: 169. 1912. *Apocynum tomentellum* Nieuwl. Am. Midl. Nat. **3**: 55. 1913. Not *A. tomentellum* Greene. 1904. *Apocynum cinereum* Nieuwl. Am. Midl. Nat. **3**: 56. 1913. *Apocynum tomentulosum* Nieuwl. Am. Midl. Nat. **3**: 166. 1913. *Apocynum cannabinum* var. *pubescens* f. *pennsylvanicum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 693, hyponym. 1913. *Apocynum cannabinum* var. *palustre* Bég. & Bel. Mem. Accad. Lincei V. **9**: 693. 1913. Entire plant more or less tomentulose; in all other essential details similar to the typical element of the species. TYPE LOCALITY: Virginia.

DISTRIBUTION: Ontario, and generally through the United States. ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 2898;* ed. 2. *f. 3381.*

Apocynum cannabinum var. **glaberrimum** A. DC. in DC. Prodr. **8**: 439. 1844. *Apocynum canadense* Shecut, Fl. Car. **1**: 187. 1806. *Apocynum album* Greene, Pittonia **3**: 230. 1897. *Apocynum nemorale* G. Miller, Proc. Biol. Soc. Wash. **13**: 87. 1899. *Apocynum cannabinum* var. *nemorale* Fernald, Rhodora **10**: 55. 1908. *Apocynum missouriense* Greene, Leaflets **2**: 165. 1912. *Apocynum isophyllum* Greene, Leaflets **2**: 166. 1912. *Apocynum littorale* Greene, Leaflets **2**: 171. 1912. *Apocynum arenarium* Greene, Leaflets **2**: 173. 1912. *Apocynum Bolandri* Greene, Leaflets **2**: 175. 1912. *Apocynum Carolini* Nieuwl. Am. Midl. Nat. **3**: 53. 1913. *Apocynum cannabinum* var. *album* Bég. & Bel. Mem. Accad. Lincei V. **9**: 695. 1913. *Apocynum cannabinum* var. *isophyllum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 697. 1913. *Apocynum cannabinum* var. *Bolandri* Bég. & Bel. Mem. Accad. Lincei V. **9**: 698. 1913. *Apocynum cannabinum* var. *floribundum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 698. 1913. *Apocynum nemorale* var. *glabrum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 701. 1913. Plant glabrous throughout; in all other essential details similar to the typical element of the species. TYPE LOCALITY: Canada. DISTRIBUTION: Quebec to Alberta, and generally throughout the United States.

7. **Apocynum sibiricum** Jacq. Hort. Vindob. **3**: 37. 1770.

Apocynum hypericifolium Ait. Hort. Kew. **1**: 304. 1789.
Apocynum cannabinum var. *hypericifolium* A. Gray, Man. 365. 1848.
Apocynum hypericifolium f. *arenarium* F. C. Gates, Torreya **11**: 128. 1911.
Apocynum estellinum Greene, Leaflets **2**: 165. 1912.
Apocynum procerum Greene, Leaflets **2**: 169. 1912.
Apocynum ithacense Greene, Leaflets **2**: 170. 1912.
Apocynum subuligerum Greene, Leaflets **2**: 171. 1912.
Apocynum cannabinum var. *estellinum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 697. 1913.
Apocynum neogeum Bég. & Bel. Mem. Accad. Lincei V. **9**: 698. 1913.
Apocynum lividum var. *texanum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 717. 1913.
Apocynum Farwellii var. *glaucum* Farwell, Rep. Mich. Acad. **17**: 170. 1916.
Apocynum Farwellii var. *glaucum* f. *ternarium* Farwell, Rep. Mich. Acad. **17**: 170. 1916.
Apocynum Farwellii var. *glaucum* f. *anomalum* Farwell, Rep. Mich. Acad. **17**: 170. 1916.
Cynopaema hypericifolium Lunell, Am. Midl. Nat. **4**: 509. 1916.
Apocynum sibiricum f. *arenarium* Fernald, Rhodora **37**: 328. 1935.

Stems erect or somewhat ascending, 2–8 dm. tall, glabrous, with opposite branches; leaves opposite or rarely verticillate, sessile or subsessile, especially on the main stem, those on the upper branches frequently shortly petiolate, ascending or slightly spreading, oblong or oblong-lanceolate to oval, 1.5–14 cm. long, 0.3–4.5 cm. wide, obtuse to rounded at the base, glabrous; inflorescence usually dense, the bracts usually conspicuous and more or less subfoliaceous; calyx-lobes lanceolate, 2–4 mm. long, glabrous; corolla urceolate to shortly cylindric, about as long as broad, 3–5 mm. long, white or greenish, glabrous externally, the lobes erect or slightly spreading; follicles 4–10 cm. long, glabrous, pendulous at maturity.

TYPE LOCALITY: North America.
DISTRIBUTION: Newfoundland and southern Canada, westward to Wyoming, and southward to Virginia and Texas.
ILLUSTRATIONS: Lam. Tab. Encyc. *pl. 176;* Britt. & Brown. Ill. Fl. *f. 2897;* ed. 2. *f. 3380;* Ann. Mo. Bot. Gard. **17**: *pl. 18.*

Apocynum sibiricum var. **Farwellii** (Greene) Woodson. *Apocynum Farwellii* Greene, Leaflets **2**: 168. 1912. *Apocynum Farwellii* f. *verticillare* Farwell, Rep. Mich. Acad. **17**: 170. 1916. *Apocynum hypericifolium* var. *Farwellii* Woodson, Ann. Mo. Bot. Gard. **17**: 140. 1930. Plants variously pubescent. TYPE LOCALITY: Near Detroit, Michigan. DISTRIBUTION: New York, Michigan, and Indiana.

Apocynum sibiricum var. **cordigerum** (Greene) Fernald, Rhodora **37**: 327. 1935. *Apocynum cordigerum* Greene, Leaflets **2**: 164. 1911. *Apocynum hypericifolium* var. *cordigerum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 704. 1913. Leaves ovate to obovate, deeply cordate to amplexicaul, at least the lower. TYPE LOCALITY: Near Brookings, South Dakota. DISTRIBUTION: Wisconsin to North Dakota, and southward to Illinois, Missouri, and Nebraska.

Apocynum sibericum var. **salignum** (Greene) Fernald, Rhodora **37**: 328. 1935. *Apocynum salignum* Greene, Pittonia **5**: 64. 1902. *Apocynum nevadense* Goodding, Bot. Gaz. **37**: 57. 1904. *Apocynum cervinum* Greene, Leaflets **2**: 174. 1912. *Apocynum Breweri* Greene, Leaflets **2**: 176. 1912. *Apocynum densiflorum* Greene, Leaflets **2**: 176. 1912. *Apocynum thermale* Greene, Leaflets **2**: 176. 1912. *Apocynum longifolium* Greene, Leaflets **2**: 177. 1912. *Apocynum hypericifolium* var. *nevadense* Bég. & Bel. Mem. Accad. Lincei V. **9**: 705. 1913. *Apocynum hypericifolium* var. *salignum* Bég. & Bel. Mem. Accad. Lincei V. **9**: 708. 1913. Corolla cylindric to urceolate, distinctly longer than broad. TYPE LOCALITY: Humboldt County, California. DISTRIBUTION: Manitoba and Minnesota to Texas, and westward to British Columbia and California. ILLUSTRATION: Ann. Mo Bot. Gard. **17**: *pl. 19.*

COMPLETED VOLUME

9: i–iv, 1–542. (Agaricales:) Polyporaceae (pars), Boletaceae, Agaricaceae (pars). Complete in 7 parts.

PARTS OF VOLUMES PREVIOUSLY PUBLISHED

2^{1}: 1–76. Blastocladiales: Blastocladiaceae. Monoblepharidales: Monoblepharidaceae. Saprolegniales: Saprolegniaceae, Ectrogellaceae, Leptomitaceae.

3^{1}: 1–88. Hypocreales: Nectriaceae, Hypocreaceae. Fimetariales: Chaetomiaceae, Fimetariaceae.

6^{1}: 1–84. Phyllostictales: Phyllostictaceae (pars).

7^{1}: 1–82. Ustilaginales: Ustilaginaceae, Tilletiaceae. **7^{2}**: 83–160. **7^{3}**: 161–268. **7^{4}**: 269–336. **7^{5}**: 337–404. **7^{6}**: 405–480. **7^{7}**: 481–540. **7^{8}**: 541–604. **7^{9}**: 605–668. **7^{10}**: 669–732. **7^{11}**: 733–796. **7^{12}**: 797–848. **7^{13}**: 849–969. Uredinales: Coleosporiaceae, Uredinaceae, Aecidiaceae.

10^{1}: 1–76. **10^{2}**: 77–144. **10^{3}**: 145–226. **10^{4}**: 227–276. **10^{5}**: 277–348. (Agaricales:) Agaricaceae (pars).

11^{1}: 1–102. *pl. 1–36.* Oedogoniales: Oedogoniaceae.

14^{1}: 1–66. Sphaerocarpales: Sphaerocarpaceae, Riellaceae. Marchantiales: Ricciaceae, Corsiniaceae, Targioniaceae, Sauteriaceae, Rebouliaceae, Marchantiaceae.

15^{1}: 1–75. Sphagnales: Sphagnaceae. Andreaeales: Andreaeaceae. Bryales: Archidiaceae, Bruchiaceae, Ditrichaceae, Bryoxyphiaceae, Seligeriaceae. **15^{2}**: 77–166. Dicranaceae, Leucobryaceae.

16^{1}: 1–88. Ophioglossales: Ophioglossaceae. Marattiales: Marattiaceae. Filicales: Osmundaceae, Ceratopteridaceae, Schizaeaceae, Gleicheniaceae, Cyatheaceae (pars).

17^{1}: 1–98. Pandanales: Typhaceae, Sparganiaceae. Naiadales: Zannichelliaceae, Zosteraceae, Cymodoceaceae, Naiadaceae, Lilaeaceae. Alismales: Scheuchzeriaceae, Alismaceae, Butomaceae. Hydrocharitales: Elodeaceae, Hydrocharitaceae. Poales: Poaceae (pars). **17^{2}**: 99–196. **17^{3}**: 197–288. **17^{4}**: 289–354. **17^{5}**: 355–418. **17^{6}**: 419–482. **17^{7}**: 483–542. Poaceae (pars).

18^{1}: 1–60. **18^{2}**: 61–112. **18^{3}**: 113–168. **18^{4}**: 169–240. **18^{5}**: 241–312. **18^{6}**: 313–392. **18^{7}**: 393–478. (Poales:) Cyperaceae (pars).

19^{1}: 1–60. Xyridales: Mayacaceae, Xyridaceae, Eriocaulaceae, Pontederiaceae.

21^{1}: 1–93. Chenopodiales: Chenopodiaceae. **21^{2}**: 95–169. Amaranthaceae. **21^{3}**: 171–254. Allioniaceae. **21^{4}**: 255–339. Batidaceae, Petiveriaceae. Tetragoniaceae, Portulacaceae, Basellaceae.

22[1]: 1–80. Rosales: Podostemonaceae, Crassulaceae, Penthoraceae, Parnassiaceae. **22**[2]: 81–191. Saxifragaceae, Hydrangeaceae, Cunoniaceae, Iteaceae, Pterostemonaceae, Hamamelidaceae, Altingiaceae, Phyllonomaceae. **22**[3]: 193–292. Grossulariaceae, Platanaceae, Crossosomataceae, Connaraceae, Calycanthaceae, Rosaceae (pars). **22**[4]: 293–388. **22**[5]: 389–480. **22**[6]: 481–560. Rosaceae (pars).

23[1]: 1–76. **23**[2]: 77–136. **23**[3]: 137–194. (Rosales:) Mimosaceae. **23**[4]: 195–268. Krameriaceae, Caesalpiniaceae (pars). **23**[5]: 269–349. Caesalpiniaceae (pars).

24[1]: 1–64. **24**[2]: 65–136. **24**[3]: 137–200. **24**[4]: 201–250. **24**[5]: 251–314. **24**[6]: 315–378. **24**[7]: 379–462. (Rosales:) Fabaceae (pars).

25[1]: 1–87. Geraniales: Geraniaceae, Oxalidaceae, Erythroxylaceae, Linaceae. **25**[2]: 89–171. Tropaeolaceae, Balsaminaceae, Limnanthaceae, Koeberliniaceae, Zygophyllaceae, Malpighiaceae. **25**[3]: 173–261. Rutaceae, Surianaceae, Simaroubaceae, Burseraceae. **25**[4]: 263–326. Meliaceae, Trigoniaceae. Polygalales: Vochyaceae, Polygalaceae (pars). **25**[5]: 327–383. Polygalaceae (pars), Dichapetalaceae.

29[1]: 1–102. Ericales: Clethraceae, Monotropaceae, Lennoaceae, Pyrolaceae, Ericaceae.

32[1]: 1–86. **32**[2]: 87–158. **32**[3]: 159–228. **32**[4]: 229–300. Rubiales: Rubiaceae (pars).

33[1]: 1–110. Carduales: Ambrosiaceae, Carduaceae (pars).

34[1]: 1–80. **34**[2]: 81–180. **34**[3]: 181–288. **34**[4]: 289–360. (Carduales:) Carduaceae (pars).

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